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**MIDWIVES ASSESSING
PROGRESS IN LABOUR:
WORKING AND LEARNING**

MAUREEN L SOOKHOO

PhD

2004

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**MIDWIVES ASSESSING PROGRESS IN LABOUR:
WORKING AND LEARNING**

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BA, MA, SRN, SCM, DipN (Lond), MTD, pgDip**

**A thesis submitted in partial fulfilment
of the requirements of the
University of Northumbria at Newcastle
for the degree of Doctor of Philosophy.**

June 2004

No part of the work contained in this thesis has been submitted for any type of course or award.

Maureen L SOOKHOO

29 June 2004

ABSTRACT

This Thesis is based upon a project researching midwives confidence and capability in holistic assessment for 'normal labour' and the development of these attributes as a response to learning to care for women. The project was an exploratory qualitative study using interview, ethnography and questionnaires to collect data from three sites in the UK. Qualitative data analysis was adopted to build theory and this resulted in the development of a project model (Figure 6.1: Midwives Assessing Intrapartum Progress) that represents the findings of the study.

Results identify a range of diagnostic information that midwives can consider when judging labour progress and identifies differences when assessing low risk cases between those using an active management style of assessment and those using an expectant management style in the extent of making use of internal or external indicators of progress respectively. Differences in interpreting information and judgements about using procedures reflect a focus on childbirth and care, learning from experience and influences within the midwifery team and organisation.

Differences in understanding and in philosophical position towards childbirth interact with capability resulting from experience, and this interaction is expressed in the degree of discretion to practice holistic assessment, negotiated within the structures and processes of the work place. To adopt an expectant management style of assessment for normal labour midwives must sustain motivation. Motivation is dependant upon understanding and capability, both learned in practice, but not well developed in many of the respondents in the study.

Active management creates an illusion of accuracy and certainty and this is not safe or effective for midwifery diagnosis. It has also restricted midwives tolerance for uncertainty and decreased the credibility of less technical information that is important. A holistic approach to assessment based on observation and complemented by technology when required is a more effective diagnostic approach when midwives spend sustained periods with women without on-site medical cover.

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I am indebted to the midwives and women who participated freely within this study, without their openness and acceptance hidden aspects of practice would have remained concealed. I have always recognised the privileged introduction to midwifery I obtained working with the dedicated, powerful midwives of the Royal Shrewsbury Hospitals, Shropshire in the 1970's. This experience has been an anchor for me during my career in midwifery and has also influenced my research. Thank you to my colleagues at the University of Northumbria who have provided enthusiasm and practical words of wisdom during this project.

Two years of this project were supported by funding provided by The Health Foundation as a full-time mid-career award. I appreciate the opportunity that the Foundation has provided.

PREFACE

'Most women's experience of childbearing in the UK today are medicalised, ... Doctors may not be physically present in the room during actual labour, but the maternity unit and the labour ward are their domain. The act of birth is surrounded by all of the symbols of the medical profession and all that it stands for - science, power and knowledge.'

(Henley-Einion, 2003, p173)

The above quotation appears to reflect the reality of childbirth for most women in the UK. Despite a focus on providing choice for women, including an option to select care by midwives if women are 'normal' there is little evidence for a different approach to care, and in particular little evidence of a different approach to labour assessment. This is important as through the application of assessment methods the perspective of the midwife towards childbirth is demonstrated. Unfortunately while midwives seem to be attempting to provide holistic woman centred care their approach to assessment is technocentric, this indicates a lack of confidence in the birth process and lack of acceptance of the value of alternative midwifery assessment based on observation and abdominal examination. Unfortunately women are still subjected to invasive vaginal examinations that reflect an active management approach to progress assessment.

Personal Standpoint on Care and Assessment in Labour

Personal standpoint to care and assessment in labour is relevant to this qualitative study because of the influence on data analysis and also to explain the focus of the project. The process of deciding what subject is worthy of study, an appropriate way to explore the subject and interpreting particular meaning to be located in the data, is influenced by the values, experience, skills and knowledge of the qualitative researcher. To provide a degree of transparency about personal biases this section provides information about personal experiences that have shaped my knowledge of and views of that which is midwifery practice in general and in particular the relationship between care and progress assessment in labour.

Having been employed as a Nursing Cadet, Student Nurse and Staff Nurse between 1969 and 1975 in the North East of England I moved to Shropshire in 1975 to undertake midwifery training as a Pupil Midwife and complete the Central Midwives Board examinations (Part 1 and Part 2) and become a State Certified Midwife in 1976. I remained in Shropshire, working as a Staff Midwife and Midwifery Sister in hospital and community locations until 1980. I then moved to Cleveland as a Midwifery Sister as I wanted to teach and wished to be seconded for a full-time Midwife Teachers Diploma. I have been in midwifery education since 1980, at first in a School of Midwifery in Cleveland and since 1986 in Higher Education at the University of Northumbria.

When I was learning and practicing midwifery at the Royal Shrewsbury Hospitals in the 1970's women booked with obstetricians had their labour actively managed. Partograms were used to record labour progress on a graph as quality of contractions, descent of the presenting part in fifths palpable abdominally and cervical dilatation. Vaginal examinations were routinely undertaken after women had experienced 4 hours of substantial uterine contractions and repeated 4 hourly. A normographs representing

the rate of dilatation for populations of women was used to compare dilatation and medical (intravenous Syntocinon) and or surgical intervention (artificial rupture of membranes) was undertaken by medical staff if progress was not equivalent. Midwives did not undertake artificial rupture of membranes or apply scalp electrodes.

While active management of labour was provided for obstetric cases, many women who were problem free were booked under the care of General Practitioners (GPs). Such women were identified as normal and unless they wished to deliver in the consultant unit they could opt for a home birth or deliver in one of the General Practitioner Units, in which case midwives and GPs provided care. Management of labour that was adopted for home birth and GP unit birth reflected a 'conservative' approach. Vaginal examinations were used only when required for example if abnormality was suspected, and were not routine. Reflecting this difference the labour record consisted of clinical observations and did not include a partogram as labour history, quality of contractions, client reaction and abdominal palpation were generally used to diagnose labour and assess progress. If maternal or fetal problems developed women were referred to an obstetrician and either transferred to the consultant delivery unit or in some cases GPs on the obstetric register would provide obstetric management. The aim of care was to achieve a physiological birth and midwives did not intervene to augment or accelerate labour.

As Shropshire provided a fully integrated midwifery service, I like most midwives where I worked had a variety of experience. More than half of my experience was in the consultant unit, where my allocation alternated every four weeks between the ward for labour, delivery and theatre suite, and a ward for antenatal and postnatal care. Each four-week rotation comprised of three weeks of day duty and one week of night duty. The remainder of my experience was made up of allocations of several months duration at a time to three of the community locations. In two locations I worked predominantly in the General Practitioner Unit providing intrapartum and postnatal care, and in the other I worked predominantly as a community midwife, only working in the unit at night to provide intrapartum care for women giving birth in the unit and in the community.

I think my midwifery training and experience in Shropshire was important in shaping my particular approach to and understanding of childbirth. Rotating to provide care in labour and in the prenatal and postnatal phase of pregnancy every few weeks, and allocation to different geographical locations provided an overview of the experience of birth for individual women, increased my confidence and adaptability and required that I work from principles, rather than cultural norms and I developed skills that could be adapted to consultant or community care.

I was familiar and comfortable with the work in the consultant unit and I had little problem adapting to a more conservative approach to care when appropriate. In part this was out of necessity linked to the realisation that I could avoid potential problems with maternal physiology by providing care, support and a comfortable environment. It was evident that the type of birth process experienced by women in the General Practitioner Units appeared to be less painful and traumatic, and women seemed to adapt more positively to the birth process and the process of motherhood. Although in

contemporary practice continuity of caregiver is often a feature of this type of environment, the positive effect I observed was not a result of continuity of care giver; as midwives on the unit cared for women that they might not have met until labour commenced. Because of frequent rotation I generally cared for women who had not met me before and it was important to establish a positive helping relationship and learn about women by observing and listening to them. In some respects it was generally easier to care for women in labour in GP units because there was no electronic equipment, infusions or medical staff to attend to and women remained more mobile, required less analgesia and were more self-determined.

The major difference between the consultant delivery area and the delivery area on the GP units was in the use of technology. In the consultant area Cardiff infusion systems were used to administer an increasing dosage of Syntocinon in response to internal uterine pressure readings, there was continuous fetal heart rate monitoring, epidurals and inductions; while in the GP areas there was no electronic equipment and clinical examination, intermittent auscultation and client reactions were used to monitor the birth process. The absence of technology encouraged midwives to focus on and interact with women, as talking to women, observing them and examining them was the only source of information. Vaginal examinations were used if necessary, but they were used selectively and not considered a routine part of assessment. This seems to be important as the element of labour management concerned with judging progress was integrated within an 'atmosphere' of care where it did not dominate the birth process.

When I moved to the consultant unit in Cleveland, labour was actively managed and the approach to monitoring was similar to my previous experience of active management and felt familiar. Although slightly less technology was available it was constantly in use and in contrast to my experiences in Shropshire medical staff did not necessarily attend when medical procedures were required; instead midwives carried out artificial rupture of membranes and attached fetal scalp electrodes according to medical protocols. The incidence of artificial rupture of membranes seemed to be much higher in this unit, as was the need for analgesia and epidurals. It seemed that in the Cleveland unit midwives were more focussed on technical tasks.

The experiences I have had as a clinical midwife and a midwifery educationalist have influenced my views on labour care and assessment, and my interpretation of research findings and maternity statistics. My view is that for most women pregnancy and childbirth is generally unproblematic if left to proceed as a physiological process. In this circumstance I consider that care provided according to a midwifery approach has advantages for the process and outcome of birth. As problems may develop during labour and delivery it is important that labour is observed to detect such problems, particularly to avoid prolonged labour and where necessary to refer women to an obstetrician. If women are free of medical conditions, pregnancy complications and problematic birth history I believe it is desirable for midwives to assume full responsibility for care in childbirth. Such care includes monitoring the progress of labour to identify that contractions, descent, fetal condition and maternal response develop as expected for normal childbirth. When combined with abdominal examination a thorough vaginal examination is an especially valuable diagnostic procedure for midwives to use when problems with the labour are suspected. However, I believe it is

not necessary to undertake routine vaginal examinations because a holistic approach to assessment and care will detect and avoid problems and because unpleasant procedures should be used only when required. In particular I consider it preferable for midwives to interpret women's reaction to labour and in particular to focus on the discomfort and involuntary pressure of uterine contractions, rather than basing care and pain management on cervical dilatation. Labour is not a health care problem where midwives have to take over and investigate the process, rather as a physiological process it should be recognised as exhausting and demanding of women's ability to adapt. Unlike the role of medical staff midwives have an important role supporting women in labour, avoiding the development of problems and reducing the need for drugs or intervention by providing fundamental care.

A lack of evidence about any advantages associated with active management of labour over a conservative approach potentially provided by expectant management causes me to conclude that expectant management is the approach that midwives should use when women are 'normal'. With appropriate preparation and experience midwives should be able to demonstrate confidence in childbirth. Although cases identified as obstetric can benefit from expectant management, medical responsibility may determine how management is provided and the requirement for specific information necessitate vaginal examination.

There has been an increase in the responsibility that midwives have for normal birth but midwives continue to base diagnosis on active management. The implications of this is that midwives who continue to use routine vaginal examinations and electronic fetal monitoring are not providing women centred midwifery, they are providing obstetric management. However, I anticipate that midwives without an opportunity to develop confidence in maternal physiology and an approach to assessment not oriented to technology and routines may have difficulty interpreting the nature of expectant management, how this can be a different type of experience for women and midwives, understanding how to use alternative skills and possibly identifying suitable cases for midwifery care.

For me expectant management is part of a whole-package-of-belief about the role of midwives supporting normal birth. I do not believe it is sufficient for midwives to assume responsibility for managing 'normal' labour and continue to provide routine care and assessment dominated by a technological view of childbirth that denies women power within the childbirth experience. It is possible that routines of labour ward practice have replaced a thoughtful approach to care and assessment interpreted and determined by individual women's needs and situation. However, as learning to undertake professional practice is reliant upon knowledge from theories and knowledge from practice, I consider it unrealistic to expect a change of practice to follow closely behind a change in national policy or recommendations.

CHAPTER 1: INTRODUCTION

The pressures for midwifery services to provide care that is client centered, rather than technology driven is in part related to a lack of evidence supporting intervention in normal childbirth (Fraser *et al*, 1998) and because of this transition from active management of childbirth to expectant management is being encouraged (Department of Health (DOH) 1993).

A fundamental difference between the two forms of management is in the degree of confidence in maternal physiology. In active management physiology is suspect, the rate of labour progress is prescribed and cervical dilatation is plotted on a graph and compared against an expected trajectory that represents 'normal progress'. However, for women giving birth at term, when they are expected to have a vaginal birth with minimal assistance expectant management demonstrates greater confidence in maternal physiology. Variation in progress is accepted as part of individual physiology, and while observation to detect pathology is provided, the process is left to run its course. Cervical dilatation may on occasion be assessed, but there is no need for regular routine assessment.

The extent to which vaginal examination is used, in theory, should be reduced when expectant management is used. This is significant because vaginal examinations have traumatic associations, linked to discomfort, embarrassment and emotional trauma. In one study 100 women out of a sample of 500 identified obstetric and gynaecological procedures as traumatising; of these 30 met criteria for a diagnosis of a posttraumatic stress disorder (Menange 1996). This type of reaction is particularly apparent when women have experienced childhood sexual abuse. In a study by Robolm and Buttengheim (1996) survivors reported more trauma-like responses, overwhelming emotions and unwanted unpleasant memories than controls. Menange (1996) concludes that midwives should understand that women are vulnerable during vaginal examinations and Stuart (2000) believes vaginal examination is invasive and that midwives should rely to a greater extent on other methods of assessment. An awareness of the effect on

clients and evidence that confidence in the findings cannot be justified caused Walsh (2000) to conclude that:

'... routine repeated vaginal examinations in normal labour should be abandoned until research establishes their appropriate place.'

While it is believed that midwives should use expectant management and avoid unnecessary vaginal examinations it should not be assumed that they have the knowledge and skills to be able to do so, or that the working environment will support such a change. Prior to the 1970's midwives used alternative methods and had expertise that they could use, in particular the pattern of uterine contractions and the descent and flexion of the head that can be assessed on abdominal palpation. Stuart (2000) who practiced at a time when reliance on vaginal examination was minimal, was able to utilise vaginal examination within her practice if necessary, but she had substantial confidence in alternative skills. She is concerned about the inability of student midwives to use abdominal palpation and their over-reliance on vaginal examination. This concern is shared by Magil-Cuerdon (2001) who has noticed, as I have that essays written by contemporary student midwives rarely include details of abdominal palpation along with findings from vaginal examination. Erosion of confidence in abdominal palpation is demonstrated in the change of emphasis in assessment since the early 1970's. This is evident in successive editions of Myles' Textbook for Midwives. With confidence in the 1971 edition Myles declares that '... a vaginal examination should not be necessary during every labour' and emphasises findings from abdominal palpation (Stuart, 2000). The 1975 edition reduces the importance of abdominal palpation 'A vaginal examination should always be preceded by abdominal palpation (Myles, 1975, p246-7). By 1989 the reduced importance of the abdominal examination is apparent 'with a combination of external and internal findings the skilled midwife will have a very detailed picture of progress in labour (Bennett & Brown, p155).

It is likely that midwives working in an environment where vaginal examinations are performed routinely, and who prioritise cervical dilatation as a method of assessing progress, may not be skilled in abdominal palpation or may not be confident in what they

find. There is a precedent for this in a study that compared active management with physiological management to deliver the placenta and membranes. Midwives in the study required instruction in physiological management due to inexperience in physiological management (Elbourne & Harding, 1989).

It is possible that routine over-reliance on cervical dilatation may have influenced the ability of midwives to develop and retain confidence in other methods of assessment. It would seem presumptive to believe that midwives would find it easy to change their practice even if they have the skills, knowledge and confidence in using findings from abdominal palpation and characteristics of contractions to monitor progress. This is significant as where assessment is based upon a variety of information, of different types, decisions and judgment is improved (Magil-Cuerdon, 2001). As midwives in the past had greater confidence in using alternatives to cervical dilatation to assess progress, it is clear that these skills could be reintroduced, however it is important to establish the practice knowledge behind the use of particular assessment at specific times. It is necessary to establish the knowledge and skills that midwives are using to assess intrapartum progress, how this is linked to opportunities to learn, and the effect of organisational and cultural factors on learning and developing practice knowledge. The aims for the research project are based on the factors discussed in the previous section:

- To identify the range of knowledge, skills and assessment methods used by midwives when assessing progress during labour.
- To identify practice knowledge and its influence on adopting particular assessment methods in specific circumstances.
- To identify links between learning opportunities from 'doing work' and developing knowledge and skill in intrapartum assessment.
- To identify factors in the organisation and culture of the workplace that have an impact on the way that intrapartum assessment skills and knowledge are developed and used.

Since the commencement of the project midwives skills have become much more of an issue because of the drive to modernise the maternity services and the philosophy of a service designed around user's needs. This is being undertaken against a background of a predicted shortfall of senior medical staff that makes the current configuration of maternity services untenable and encourages the development of a model that makes more effective use of midwives skills with normal pregnancy. As an example a report by the Maternity and Neonatal Workforce Group for the Department of Health Children's Taskforce (DOH, 2003, p 2, para. 6) was based upon work in which the group explored and identified key factors in maternity services staffing, structures and management that are necessary to deliver a service which:

- *'is centred around the needs and wishes of women and their families and communities, offering women real choices about their care*
- *is clinically appropriate and cost effective for both mothers and newborns, according to the best available evidence*
- *is safe, accessible, flexible and wherever possible, local*
- *contributes to public health outcomes and reduces health inequalities*
- *provides seamless care across primary, secondary and tertiary sectors*
- *uses and develops professional skills efficiently and effectively*
- *works in partnership with other statutory and voluntary agencies.'*

Implicit in this service is the development of community services for normal women staffed by midwives who will be working without on site medical cover while providing care in childbirth. This places midwives diagnostic skills at the forefront of developments of the restructured maternity services and places this study within a context of developments in maternity care. The following sections present an overview of the structure of the Thesis.

Chapter 2 provides a review of the literature in relation to two competing philosophies of childbirth and how these create different perspectives on uncertainty in diagnosis and different responses to labour care and labour assessment that reflect different levels of technology. The need for midwives to provide a less technological form of

care is discussed in relation to theories of learning where the difficulty in making the transition to women centred holistic care is acknowledged. In order to understand the implications for midwives of providing holistic care in labour the review considers several aspects that seem particularly relevant. This begins with a historical analysis of the factors that influenced how midwives were to participate in labour care and the way in which drivers such as availability of hospital beds and mortality statistics led to the development of a hospital centred maternity service in the UK. An analysis of practice drivers such as an approach to labour based on technology and active management is used to explain the process that led to a partial deskilling of midwives until in the 1990's women's increasing dissatisfaction with care and a re-evaluation of mortality rates and birth outcome statistics cast doubt on the effectiveness of childbirth technology. The remainder of the review is concerned with literature that charts the debate within midwifery about demarcating normal childbirth, how this has led to an exploration of alternative knowledge and skills that midwives can use to provide an alternative to active management and the role that experience and the work environment plays in the development of appropriate alternative skills.

The review concludes that alternative approaches require skills in expectant management, increased collaboration with women and greater autonomy from medical staff and there is evidence that midwives may not all possess the skills and confidence to work in this way.

Chapter 3 provides a discussion of research methodologies in relation to the project and describes and discusses the methods that have been adopted, samples and ethical issues. The project is exploratory and a variety of qualitative methods have been adopted in order to build knowledge around professional practice and the influence of work on professional learning. Although three Midwifery Units were selected for the study each contributed differently and one formed the basis of a case study, where multiple methods of data collection were used (Interview, Field Study and Questionnaires). At an early stage in the data collection categories were identified in the data and a model was developed to test relationships between each category. Categories and early models are presented in Appendix 1. The project models were

used to decide on samples and data collection - as data was considered in terms of the fit with the model - and was used to test and gradually develop the model. This was also the basis for selection of further Midwifery Units. A final project model is presented in chapter 6 (Figure 6.1). Analysis has concentrated on theory building and development of concepts that are expressed in the project model to relate them to midwifery diagnostic process. The concepts emerge from the data and at the same time are connected to the wider literature in a systematic way. The approach adopted typifies the diverse, yet disciplined procedural diversity of an adaptive theory approach to theory building (Layder, 1998). The perspective adopted for theoretical sampling and analysis was one of reflective rationality that recognises the complexity of professional action and takes into account the action context.

Chapters 4, 5 and 6 present and discuss the results from the study using the project model to structure the discussion of data arising from the different methods and from the three Midwifery Units. Data from each method is integrated within each chapter although results from each method are also considered in terms of similarity and difference and where possible explanations are provided to account for this.

Chapter 4 is structured around and presents data that reflects the category Diagnostic Process from the project model (Figure 6.1). Within the project model this represents the type of Information Gathering strategies that midwives adopt to obtain information about labour progress in the form of Diagnostic Indicators, how midwives engage in Information Processing in which Diagnostic Indicators are weighed for relevance and during which midwives confront the uncertainty of normal childbirth while resolving evidence to arrive at a Progress Classification that is subject to change and that drives the next phase of Information Gathering.

Analysis has revealed a difference in prioritising external or internal signs of progress as a feature of the assessment style adopted by individual midwives. Midwives who prioritise routine assessment and internal signs do not all appreciate when diagnostic information is desirable. Routine assessment based on the limited criteria of active management appears to reduce effectiveness in assessment and causes a failure to

recognise problems. This indicates that it is necessary for midwives to use a broader range of skills and criteria based on holistic observation.

Chapter 5 is structured around and presents data that reflects the category Diagnostic Orientation (Figure 6.1). Within the project model this represents the approach that midwives adopt when assessing progress. Diagnostic Orientation is comprised of the sub-categories Activity Style, Sphere of Practice and Confidence. Activity Style represents an individual midwife's preferred approach and Confidence in assessment skills influences Activity Style. Activity Style and Confidence are both influenced by the particular Sphere of Practice within which a midwife is working.

Observation skills appear to be critical to midwifery care and form the basis of an expectant management style of assessment because they provide a more effective means of monitoring labour when practitioners spend substantial time with women in labour. Despite this it appears that midwives are prevented from developing skills in observation by others working in their midwifery teams who specify the type of information in records and oral reports. As a result of this skills in observation are not developed on the consultant labour wards. If they can develop understanding of and confidence in observation skills a few midwives are motivated to resist pressure to use an active management style of assessment.

Chapter 6 is structured around analysis from Chapter 4 and 5 and the category Working and Learning that is developed within the chapter. A final project model is presented in this chapter (Figure 6.1) representing the integration of factors that influence how midwives learn to undertake labour progress assessment. In particular the development of an Expectant Management Style of Assessment is discussed in relation to experience and knowledge, the development of a Sense of Coherence and the influence of Communities of Practice.

Discussion focuses on tolerance for the uncertainty of normal childbirth and compares how this is expressed within the two main approaches to assessment, an expectant and an active management style. The role of experience is examined in relation to capability

in expectant management and this is linked to the development of a Sense of Coherence for expectant management, and the role that Communities of Practice play in controlling the enterprise and experiences of workers. In this study it appears that few midwives have developed an expectant management style of assessment and most demonstrate a low Sense of Coherence that is related to an imbalance within the community of practice as reification exceeds participation. There is hierarchical distribution of power within the midwifery team that limits participation in labour assessment to technological, authoritative language. The community of practice appears to have foregone the autonomy of individual midwives within a system that increases the credibility of senior midwives and possibly prevents medical encroachment.

Chapter 7 presents the conclusion to the Thesis and also examines implications for practice in which the desirability of a self-aware approach to midwifery practice is proposed as the way forward for progress assessment, by which to counter the dominance of the medical model and its associated technologies.

The conclusion that accurate diagnosis is less likely if an active management style of assessment is adopted is important if midwives are to work in situations without on site medical cover. This has huge implications for midwives' practice as they must learn to use observation skills for normal birth and also use technology within holistic assessment, to confirm or exclude the existence of suspected problems. A minority of midwives in the study use an expectant management style and have learned to deal with the inevitable variation and uncertainty of normal labour, to focus on physiology and individual woman's experiences of a normal birth and to recognise situations where further information is required. These midwives adopt an expectant position on practice and use technology when it can make a valuable contribution to assessment. However, the development of this ability is not linked to experience in consultant units as midwives refer to experience in community midwifery, in geographically isolated units and in environments with a culture of midwifery where intervention was avoided.

The implications of the study are concerned with creating an environment for midwives and students where experience fosters the development of capability in expectant management. This has implications for the way that midwifery is organised within workforces and for the development of a climate of participation, midwife autonomy and a focus on women. In particular the importance of clinical experience for midwifery skill development is significant for the provision of educational programmes to prepare midwives for practice. It is clear that most midwives are lacking skills that are fundamental to an expectant management style of assessment.

CHAPTER 2: LITERATURE REVIEW

Literature presented in the review has been selected on the basis of relevance to the aims and results of the PhD. A broad base of published work has been used from a number of fields to provide a context for the focus of the PhD, rather than being used to justify the focus. While a selective review can be criticised for partiality, in the case of this study the value of a holistic approach to labour care by midwives has been accepted at national and organisational level and the review provides a historical context for this and explores the issues influencing its implementation at an organisational and individual level. Selective literature in the review was also a source of 'orienting concepts' or ideas that were 'constructed' during the process of 'homing-in on particular features ... and excluding others' during data analysis. A selective review reflects an adaptive theory approach in which (prior) theory and research data are simultaneously privileged in the emergence of new theory as a 'creative enterprise' of searching and construction (Layder, 1998, p107).

Introduction

Childbirth is a social experience that reflects the expectations and customs of particular groups at points in time, including who, if anyone, will assist with the birth and by what means or authority. While it is true that in some societies (such as the Kalahari Ju/'hoansi) women remove themselves from the cultural group and give birth in isolation (Bieseke, 1997; Daviss, 1997) in many societies women have identified the benefit of experienced companionship to assist with the uncertainty, discomfort and perceived need for care (Daviss, 1997). Traditionally this service was provided by groups of women who were experienced in assisting with birth (Daviss, 1997; Trevathan, 1997; Towler & Bramall, 1986). While it is important to recognising the social dimensions of childbirth, how birth is viewed as a physical process and experience is also of particular relevance for women and caregivers. Childbirth is a physiological process that should begin, proceed and resolve spontaneously and conclude with a healthy mother giving birth to a healthy baby. Even if childbirth is defined by a particular cultural group as a sociological event with a physiological process and viewed with optimism, there is the potential for problems to develop during labour, with

negative consequences for mother and baby. The uncertainty that confronts every birth is that until the birth is complete it is not possible to be entirely sure that everything will proceed normally. This uncertainty has resulted in two distinct schools of thought about birth. One perspective holds that birth is a natural process that should be accompanied by a woman centred approach to care in which there is minimal technical intervention unless intervention is clearly indicated (Clements, 1994; Down, 2001; Gould, 2000; Stuart, 2000; Walsh, 2000; Weston, 2001; Williams *et al*, 1998; Tew, 1995). Alternatively the other dictates that birth is a process that is inefficient and dangerous that requires an interventionist approach in which the physiology of birth is technically managed to prevent or reduce the uncertainty associated with natural processes (Beazley & Kurjak, 1972; Friedman, 1983; Ledger & Whitting, 1972; O'Driscoll *et al*, 1973; Philpott & Castle, 1972; Sinclair, 1999).

Although any woman in labour may potentially develop problems, the way that uncertainty about labour is expressed often reflects a particular perspective. If birth is seen as a natural process then recognising physiological parameters, maternal and fetal well-being are recognised as confirmation of a normal process. A normal birth is anticipated unless signs of pathology emerge. If birth is seen as an inefficient, dangerous process then no matter how normal the physiological parameters may be, the birth process will remain suspect until it is complete. In the first case the birth process is recognised as physiological or normal and the care that is provided reflects this. Such care may be described as physiological management, conservative management or expectant management, and is women centred or focussed so that confidence in the woman's ability to 'cope' is encouraged. In the second case 'a birth is only normal in retrospect' and the care reflects this. There is a lack of confidence in the woman and her body to resolve the birth in the absence of medical investigation and treatment. Obstetric management views labour as a medical condition and takes over responsibility from the woman, engendering a passive 'patient' state. The woman is proffered alternatives to coping such as epidural analgesia to remove 'birth pain' that is viewed as pathological and is hospitalised.

An extreme form of obstetric care is 'Active Management of Labour' (Llewellyn-Jones, 1982, p124), in which the birth attendants monitor physiological processes using routine, frequent invasive evaluation of progress and impose parameters of progress based on normal population parameters. These are used to direct intervention in the form of surgical and pharmacological augmentation of labour. This view of birth represents a biomedical perspective and it opposes the alternative biological view. A biomedical approach is characterised by the predominance of the ideology of medicine in the birth process, in contrast to a biological approach that recognises the power of maternal physiology and the problems associated with disrupting the process unnecessarily. In order to understand the complexity surrounding these two approaches it is necessary to review the historical development of midwifery practice within the context of health. Concepts of health reflect biological, psychological and social elements of care and are influenced by factors such as degrees of client choice, legislation and ethical issues that bear upon the childbirth process.

In order to locate the central debate in midwifery described above, this chapter will begin with an overview of the historical development of midwifery and obstetric services in westernised health care, focusing particularly on experiences in the United Kingdom.

The influence of practice environments, professional experiences and the insecurity surrounding the management of risk will be reviewed in order to describe how practice skills are developed, maintained or lost over time. In particular the chapter will consider the increasing importance placed on the vaginal examination (Beazley & Kurjak, 1972; O'Driscoll, Stronge & Minogue, 1973; Cardozo, Gibb, Studd, Vasant & Cooper, 1982; Tufnell, Johnson, Bryce & Lilford, 1989) as a method of assessing progress in labour, the reasons for this and the alternative approaches to assessment that are no longer as predominant as they once were. The focus of practice environments as a context for learning raises important questions about the quality of those environments and the forms of knowledge they perpetuate.

After one hundred years of increasing medicalization of birth, contemporary maternity services favour the weight of evidence and a more women centred approach to care and a physiological birth for the majority of women (DOH, 1993; DOH, 2003; Renfrew, 1995). However, there remains a grey area as to when to intervene in the natural process and by what criteria. Historical accounts indicate it is through the culture of professional learning that assessment and intervention occur and norms of professional behaviour are established to provide a framework for addressing uncertainty. This perspective is supported by experiences of other cultures confronted by birth technology. Daviss (1997) draws on the negative experiences of the Inuit and the folly of imposing birth technology because it is believed to be superior to cultural practices. This belief is based on a misconception that science associated with technology reflects what Jordan (1997) identifies as authoritative knowledge that is considered superior to science based upon experience. Recognising this misconception has implications for the development of frameworks for addressing or accepting the complexity and uncertainty in normal childbirth. It appears that a perception of certainty can be increased by the use of technology for most births. It is argued that while technology causes problems for a few births these problems can be identified by the technology and treated. This approach to using technology to increase the perception of certainty (Sinclair, 1999; Stuart, 2000; Tew, 1986; Tew, 1995) is an alternative to working with and accepting higher levels of uncertainty (Sookhoo & Biott, 2002) and a reduced incidence of iatrogenic problems.

Contemporary midwifery practice in the UK requires midwives to undertake most of the intrapartum care needed by women using the maternity service (Plummer, 1996). At the same time, for uncomplicated births, midwives are required to offer holistic expectant management. This alternative type of care is different from actively managed, highly medicalised birth. Expectant Management is dependant upon defining normal parameters for childbirth and a philosophy of care where birth is celebrated as a normal life process that needs little intervention. This alternative perspective requires midwives to draw upon practice knowledge and skills that have been overshadowed by the medicalising and pathologising of childbirth, incorporating routine vaginal assessment which was given priority over other methods of assessment (Stuart, 2000).

Both approaches to care pivot on monitoring physiology of labour (Walsh, 2000; Tuffnell *et al*, 1989; Sookhoo & Biott, 2002). One uses supportive non-invasive techniques and the other introduces technological and invasive techniques, thought to increase the accuracy of assessment but which might in and of themselves have a detrimental impact on and create problems and then discover them.

Such invasive processes have resulted in negative birth experiences for women (Clements, 1994) and reduced autonomy for midwives in the care of 'normal women' (Garcia, Garforth, & Ayers, 1985). Midwives may have adopted a biomedical approach to birth from which transition to Expectant Management is difficult as the monitoring process is considered to be less precise and therefore creates greater uncertainty. However, in order to fulfil the potential of their role midwives need to learn how to identify, demarcate and care for women in such a way that physiological, psychological and social processes are enhanced by their involvement. In particular midwives 'must be able to give the necessary supervision, care and advice to women during pregnancy, labour and the postpartum period, to conduct deliveries on their own responsibility and to care for the newborn and infant' (UKCC, 1998, 25). The European Union Midwives Directive (80/155/EEC Article 4) requires that member states ensure that midwives are entitled to take up and pursue specified activities. Including that they '.. care for and assist the mother during labour and to monitor the condition of the foetus *in utero* by the appropriate clinical and technical means, to conduct spontaneous deliveries... and to recognise the warning signs of abnormality in the mother or infant which necessitate referral to a doctor' (UKCC, 1998, 26). The Midwives Code of Practice clearly recognises 'a defined sphere of practice' for which a midwife is accountable as well as the responsibility of individual midwives for 'maintaining and developing ... competence' (UKCC, 1998, 27-28).

Since 1993 when the Changing Childbirth Report (DOH, 1993) was published, maternity services have been encouraged to provide choice in services as an alternative to the almost 100% actively managed births of the 1980's. Midwives were required to adopt a role as 'lead practitioner' for uncomplicated childbirth and provide more holistic care, not based on obstetric routines. However, the evidence from academic essays, clinical

assessment and discussion with midwives and students, suggests that midwives continue to assess intrapartum progress in routine ways derived from interventionist approaches, relying to a large extent on regular vaginal examination to assess cervical dilatation. This observation is supported by expert opinion (Magil-Cuerdon, 2001; Stuart, 2000; Walsh, 2000) and research in the literature (Tindall, 1995; Williams *et al*, 1998; Sinclair, 1999).

This doctoral research study is concerned with the approach adopted by midwives to assess progress in labour. In addition the research focuses on how midwives learn to carry out intrapartum assessment and in particular how this is learned while working within maternity care services, with their organisational structures and priorities. As holistic care and skills in Expectant Management have a knowledge base in practice, theories of learning may provide a means of understanding what knowledge is important to intrapartum care and assessment, how practice knowledge acquisition develops and how factors influencing learning can be controlled to provide maximum learning opportunities.

The review of the literature is divided into sections that deal with:

- i) A Historical Evaluation of the Development of the Maternity Service in the UK and the Impact on Participation of Midwives in Intrapartum Care,
- ii) Practice Drivers for the Development of Intrapartum Care,
- iii) The Debate on Demarcating Normal Childbirth for Holistic Midwifery Care,
- iv) Development of Midwifery Practice Knowledge and Skills in Expectant Management, and
- v) Understanding the Development of Midwifery Practice Knowledge and Skills from 'Doing the Job'.

i) A Historical Evaluation of the Development of the Maternity Service in the UK and the Impact on Participation of Midwives in Intrapartum Care.

The historical development of midwifery and obstetric practice are interrelated and demonstrate a gradual displacement of culturally focused, female care provided by midwives with interventionist, mechanistic, managed birth supervised by obstetricians and provided by obstetric teams. These developments accelerated in the 1960's and 1970's as a result of reports on the maternity services that successively recommended increasing hospital delivery. The drivers for the change were the identified need to reduce the mortality rates associated with childbirth and the hospital building programmes, which culminated in hospital delivery for almost all women from the 1970's onwards. The solutions identified were influenced by a changing philosophy in which pregnancy is regarded less as an altered physiological state and more as a medical condition requiring intervention. Unsubstantiated assumptions linking medical intervention and hospital delivery with improving mortality rates remained predominantly unchallenged until the 1980's when evidence of the detrimental influence of routine obstetric care was uncovered. This section charts the developments from the 18th century until the middle of the 1980's. During this time there was a developing trend towards consultant supervised births and reduced autonomy of the midwife in the care provided for uncomplicated childbirth.

In the 18th and 19th centuries midwives provided intrapartum care for most women, and definitely for the poor although 'male accoucheurs' were often engaged to help more affluent, healthy mothers. The interventions of accoucheur's did not make birth safer and a higher maternal death rate was recorded for the well-to-do women than poor mothers attended by midwives (Towler & Bramall, 1986; Llewellyn-Jones, 1982).

There was however a gradual fall in mortality rates from the 18th century that has been attributed to improvements in general hygiene, Public Health Legislation and the first Midwives' Act of 1902 that regulated the training and practice of midwives (Towler & Bramall, 1986). In the first half of the 20th century women in labour were for the most

part cared for by midwives who were subject to the requirement of the Midwives' Act. The importance of regulating the practice of trained health care workers in order to improve mortality rates is generally recognised. According to a statement by the World Health Organisation (WHO) in 1999: *'In England and Wales, significant reductions in maternal mortality ... was achieved only slowly and the introduction of professional midwifery was correspondingly delayed'* (p20).

The WHO considers that improvements in national maternal mortality requires a professional service. According to the WHO *'.. the key to these improvements [maternal mortality rates in England and Wales] was the institution of fully professional maternity care'* (p20). Evidence to support the importance of midwifery services is provided, by comparing the Maternal Mortality Rate (MMR¹) in 1930 for England and Wales, which was 430 per 100 000 births with the higher rate of the USA, which was 700 per 100 000 births. During these two periods there was little legislation or regulation of medical staff participation in maternity care in either nation, but in England and Wales, midwives provided most of the maternity care, and they were regulated. It was a requirement of the Midwives Act (1902) that midwives handed over care when labour was not 'normal' and when midwives detected abnormality women were urgently referred for obstetric care. There is evidence that midwives reduced maternal mortality. Organisations employing midwives to care for the poor who had bad health and living conditions had a Maternal Mortality Rate of half of the national average between 1905 and 1925 (Tew, 1986).

Although the Maternal Mortality Rate had reduced between 1900 when it was 480 per 100 000 maternities per year and 1910 when it was 360 per 100 000 maternities per year, public concern that maternal and perinatal death rates had not declined proportionally with population mortality since 1870 led to more allocation of resources to maternity care. Extra resources mostly consisted of increased participation of doctors in maternity care, although there was no evidence that medical staff improved mortality rates. On the contrary the records from the Queens Nursing Institute

¹ Maternal Mortality Rate - maternal deaths per 100 000 live births.

between 1905 and 1925 demonstrate that the maternal death rate among women cared for by midwives affiliated with the institute rose in step with the increased participation of doctors (Tew, 1986; Tew, 1995). This may explain a rising national Maternal Mortality Rate between 1920 - 30 as the numbers of obstetricians involved in 'complicated births' increased.

The significant decline in maternal deaths prior to 1952 and between 1952 and 1965 was attributed to several factors. The discovery of sulphonamides in the 1930's (Tew, 1986) the discovery of penicillin, improvements in the blood transfusion service, improved obstetric training and a wartime food policy with extra rations for pregnant women who made themselves available for antenatal care. Antenatal care led to early detection of abnormalities and medical conditions in pregnancy (Llewellyn-Jones, 1982).

A major change in childbirth services involved a gradual increase in the number of women who would give birth in hospital. In 1910 nearly all births took place at home. By 1927 there was provision for 15% of births to take place in hospital and by 1937 hospital births had risen to 34%. In keeping with this trend there was a continuous rise in consultant hospital deliveries during the 1950's and 60's when midwives provided most of the care and assessment under the direction of obstetricians. During the 1950's and 60's midwives continued to care for women who had no medical conditions or abnormalities or for those women who would not deliver in hospital. Midwives provided comprehensive maternity care in the home and in maternity units, and attended in childbirth where they monitored the progress of labour and assisted with birth. The type of midwifery care provided was '*conservative*' in that physiological processes were encouraged, and monitoring involved midwives in '*expectant watchfulness*' (Llewellyn-Jones, 1982). The Central Midwives Board (CMB²) was aware by 1954 that the numbers of women at childbearing age by 1961 would increase dramatically (see Figure 2.1) and they considered it essential that a well-organised domiciliary service should be

² Central Midwives Board - statutory body for midwives set up under the 1902 Midwives Act to lay down regulations for the training of midwives, for admission to a register and for framing of rules governing their practice (Adams, 1983). Replaced by the United Kingdom Central Council for Nursing, Midwifery and Health Visiting, in turn replaced by the Nursing and Midwifery Council.

maintained to cope with the increasing number of births (Towler & Bramall, 1986). In 1954 the CMB sent a memorandum to the committee undertaking a review of the cost of the first five years of the National Health Service (NHS). The memorandum with the heading: *'Proportion of Institutional and Domiciliary Confinements'* included the statement:

'Pregnancy and childbirth are physiological processes and apart from financial and economic considerations it is, psychologically undesirable to associate such processes too closely with establishments for treating the sick.' (Towler & Bramall, 1986, pp249 - 250)

The Cranbrook Committee was organised in 1956 to review maternity services. They identified a problem in the use of maternity beds due to poor selection, high-risk mothers wishing to give birth at home and the increased cost to the state of hospital births. Evidence was presented about consultant hospital birth from women's organisations of casual treatment, less rest, the risk of infection, psychological disadvantages and the loss of a continuum of care previously provided by midwives. These organisations were generally in favour of home birth. Towler & Bramall (1986) report that the Cranbrook Committee was of the view that:

'... the advantages of home confinement for the apparently normal case outweighs the slight risk of unforeseen complications.' (Towler & Bramall, 1986, p251)

Despite this the Cranbrook Committee proposed that consultant hospital maternity services should be expanded to provide a 70% hospital confinement rate, which supported a further reduction in home births. Nevertheless, the committee emphasised greater co-operation between maternity care providers and in particular that:

'Nothing should be done to lessen the importance of the midwife.'
(Towler & Bramall, 1986, p252)

According to Towler & Bramall (1986) although the Cranbrook Committee recognised and agreed with the conclusion of the Working Party on Midwives reported in 1949:

'... that the midwives three assets of time, skill and attitude of mind were of immense value to her patient.' (Towler & Bramall, 1986, p251)

They proposed that mothers who booked a midwife at home should also book a doctor and that care should be shared (Towler & Bramall, 1986). The factors that appeared to drive the development of policy for the maternity services in the UK to the greatest extent were the desire to reduce the maternal and perinatal mortality and the availability of hospital beds. Availability of beds reflects the availability of care provided under the supervision of consultant obstetricians. These two drivers are interrelated as one has a positive or negative influence on the other. The training of maternity services staff is thought by the Department of Health and the various professional bodies to influence mortality rates, and the training of midwives and medical staff is affected by the availability of experience caring for women in childbirth (DOH, 2003; Towler & Bramall, 1986). Birth in the home is associated with experience in Expectant Management for which midwives require preparation. On the contrary birth in consultant hospitals has a tradition of being managed, and experience available for medical staff and midwives is largely that of intervention in birth processes (DOH, 2003; Towler & Bramall, 1986; Tew, 1995).

Policy Drivers: 1 Perinatal Mortality Rates

National concern with maternal and perinatal mortality in the UK is significant in understanding changes in services provided for childbirth, and in turn the impact of these services on mortality rates. In 1900 the Maternal Mortality Rate was 480 per 100 000 births. This reduced to 360 per 100 000 per year in 1910. The perinatal mortality rate³ (PNMR) reduced slowly (by 6%) between 1931 and 1939. However there were fluctuations, for example it was higher in 1935 than in 1921. Between 1940 - 48 which were years of war, rationing and severely limited medical facilities for pregnant women there was a greater reduction in both Maternal Mortality Rates and Perinatal Mortality Rates. A reduction in the Perinatal Mortality Rate of 33% was achieved

³ Perinatal Mortality Rate - the number of stillbirths plus the number of neonatal deaths that occur in the first week of life per 1000 total births. Considered as deaths purely due to obstetric causes (Adams, 1983).

during this period. Unfortunately, the rate of decline returned to pre-war levels (6%) in the first few years of the NHS.

The Confidential Enquiries into Maternal Deaths in England and Wales has been published every three years since 1952, and it includes causes of deaths, rates and suggestions about how deaths can be prevented. Figure 2.1 shows the Maternal Mortality Rate and Perinatal Mortality Rate for the years 1952 - 1966 (DOH, 1969). Maternal deaths declined significantly by 1952 to 67 per 100 000 maternities and by 25 per 100 000 by 1965.

The biggest improvements in maternal mortality rates are demonstrated in the early years of the twentieth century. There is variation in improvement and the periods of greatest improvements are between 1900 to 1910, 1930 to 1939 and 1939 to 1952. Between these periods reductions averaged 12, 13.3 and 19.5 per 100 000 births per year respectively. From 1952 - 1965 the Maternal Mortality Rate has reduced more slowly, by about 2.7 each year. Fig 2.1 shows that reductions in Perinatal Mortality Rate between 1952 and 1966 were not great. Since 1965 when the Maternal Mortality Rate was 26 per 100 000 maternities reductions in maternal mortality have been less with rates of 22 per 100 000 in 1970 and 11 per 100 000 in 1975 (Llewellyn-Jones, 1982).

Figure 2.1: Number of Births and related death rates for the years 1952-66.

Year	Total births	MMR / 100 000 total births (excluding abortion)	MMR from abortion /100 000 total births	Total MMR	Perinatal M R* / 1 000 total births
1952	689 371	54	13	67	37.1
1953	700 053	60	11	71	36.9
1954	689 851	54	11	65	38.1
1955	683 640	50	10	60	37.4
1956	716 740	42	10	52	36.7
1957	739 996	37	6	43	36.2
1958	757 003	35	8	43	35.0
1959	764 402	32	6	38	34.1
1960	800 824	31	8	39	32.8
1961	827 008	27	7	34	32.0
1962	854 200	28	7	35	30.8
1963	869 044	22	6	28	29.3
1964	890 518	20	6	26	28.2
1965	876 566	19	6	25	26.9
1966	863 066	20	6	26	26.3

(Adapted - Table 1: Report on Confidential Enquiry into maternal deaths in England and Wales 1964-66, DOH, 1969, p5)

Fig 2.2 provides examples of Maternal Mortality Rates for every third triennium for the period 1955 - 1987.

Figure 2.2: Statistics of maternal mortality and births in the UK 1955-87.

Triennium	Total Births	MMR / 100 000 total births
1955 - 57	2521 804	67.1
1964 - 66	3040 378	33.3
1973 - 75	2239 233	18.2
1982 - 84	2183 151	9.3
1985 - 87	2293 508	7.6

(Adapted - Table 1.3: Report on Confidential Enquiry into maternal deaths in the UK 1985 - 87. DOH, 1991, p4)

During the period of greater obstetric involvement in maternity care for the majority of women the Maternal Mortality Rate for direct causes⁴ reduced between the periods 1970 - 72 and 1973-75 from 15.45 to 12.23 per 100 000 maternities. It could be assumed that obstetric involvement was the reason for the fall, but it can also be attributed to introducing abortion and contraception services. The availability of legal abortion led to reduction in deaths attributed to abortion from 81 per 100 000 in the first period to 29 per 100 000 in the second period. Figure 2.3 shows the reducing Maternal Mortality Rate attributed to abortion between 1970 - 87.

Figure 2.3: Direct deaths by cause, rates per million estimated pregnancies, England & Wales 1970-87.

Triennium	Abortion	Haemorrhage	Sepsis	Ruptured uterus
1970 - 72	25.3	10.4	10.4	3.8
1973 - 75	10.5	8.1	7.4	4.3
1976 - 78	6.0	10.3	6.5	6.0
1979 - 81	5.5	5.5	3.1	1.6
1982 - 84	4.4	3.3	1.0	1.2
1985 - 87	2.3	3.8	2.3	1.0

(Adapted -Table 1.13: Report on Confidential Enquiry into maternal deaths in UK 1985-87, 15)

The availability of contraceptive services and abortion resulted in the gradual reduction in parity, which increases the risk of many complications in pregnancy and labour. The risk of maternal death for the fifth pregnancy is double the average risk (Llewellyn-Jones, 1982). Interestingly despite the reduction in parity the incidence of deaths

⁴ Direct Maternal Deaths - deaths resulting from complications of the pregnant state

related to haemorrhage did not fall between 1970 - 78 (Figure 2.3). During the same period deaths related to ruptured uterus increased from 3.8 to 6 per million estimated pregnancies (Figure 2.3).

Since the late 1980's there has been very little variation in Maternal Mortality Rate. Figure 2.4 shows the Maternal Mortality Rate for triennium in the late 1980's and early 1990's and also gives Maternal Mortality Rate for Direct Maternal Deaths. These are deaths resulting from complications of the pregnant state.

Figure 2.4: Maternal mortality rates per 100 000 maternities, UK 1985-96

Triennium	Total Maternities	MMR / 100 000 maternities (Known to Registrar General)	MMR / 100 000 maternities (Known to the Enquiry)	MMR for Direct Maternal Deaths / 100 000 maternities (Known to the Enquiry)
1985 - 87	2268 766	7.7	9.9	6.0
1988 - 90	2360 309	7.2	10.1	6.1
1991 - 93	2315 204	6.4	9.9	5.6
1994 - 96	2197 640	7.4	12.2	6.1

(Adapted Table 1.2: Why Mothers Die - Report on Confidential Enquiries into Maternal Deaths in the UK 1994 - 96. DOH, 1989, p5)

Concern to reduce these mortality rates have provided an incentive to examine the maternity services provided in the UK and produce changes in both the location of birth and type of maternity care.

In the last half of the 20th century surveys of perinatal mortality rates in England and Wales were demonstrating an overall improvement (Figure 2.5). This improvement was attributed to increasing numbers of consultant hospital births despite the perinatal mortality rate for consultant unit births being higher than for other places of birth (Figure 2.5). Increasing the numbers of consultant unit births was based upon assumptions about probable explanations for the data (Towler & Bramall, 1986).

In 1970 the Peel Report recommended almost total hospital confinement. The report advocated 100% hospital birth on the assumption that hospital was the safest place for birth. Yearly statistics from the first Perinatal Mortality Report, published in 1963, showed that as the numbers of hospital births increased the Maternal Mortality Rate and Perinatal Mortality Rate fell.

Figure 2.5: MMR and PNMR by place of birth 1961-1966

Place of Delivery	1961	1962	1963	1964	1965	1966
NHS Hospital	62.50	63.00	65.00	67.00	70.00	72.50
Other Hospital	03.00	03.00	03.00	03.00	02.25	02.00
At Home	32.50	32.00	30.00	28.25	26.00	24.00
Other	02.00	02.00	02.00	01.75	01.75	01.50
Total	100.00	100.00	100.00	100.00	100.00	100.00
MMR (maternal deaths per 100 000 total births)	34	35	28	26	25	26
PNMR (stillbirths + infants under 1 week per 1000 total births)	32.0	30.8	29.3	28.2	26.9	26.3

(Adapted - Table 1: Report on Confidential Enquiry into maternal deaths in England and Wales 1964 - 66. DOH, 1969, p5)

A cause-effect relationship was assumed by and accepted by many obstetricians, who continued to support consultant hospital birth (Tew, 1986). There was an indication in mortality statistics that consultant hospital birth was not safest for babies. A national survey of perinatal mortality rates had been carried out in 1958, at a time when 49% of births took place in consultant obstetric hospitals. The perinatal mortality rate was lowest for home births (19.8), slightly higher for General Practitioner Hospitals (20.3%) and two and a half times higher for consultant unit births (50.0). However, an assumption was made at the time that consultant hospital mortality reflected the proportion of high-risk pregnancies being selected for delivery under consultant supervision (Towler & Bramall, 1986).

Although there was some scepticism that improvement in perinatal mortality rates was due to anything other than improved social conditions and reductions in parity the assumptions made about perinatal mortality rates supported the general trend towards hospital birth and intervention in the birth process (Towler & Bramall, 1986).

Policy Drivers: 2 Hospital Building Programme

Rising birth rates in the late 1950's and early 1960's resulted in a shortage of maternity beds. The shortage of beds and the preponderance of outdated maternity facilities in the country led to the building of better, new and bigger maternity units within the following 10 years. A consequence of the building of many new maternity units was the need to occupy all of the beds. The need to occupy obstetric beds was partly responsible for the almost 100% consultant hospital confinement rate in the 1970's and

later, and the inevitable involvement of consultant obstetricians in most births. At the same time small community maternity units were closed or used for postnatal care. The new places for birth were called Consultant Obstetric Units and for the most part, consultants laid claim to the beds and the women who occupied them. Prior to the 1970's place of '*confinement*' for birth was selected according to criteria where individuals with medical or obstetric problems and primigravida were given priority for hospital consultant beds. Geography made it difficult for consultants to supervise other women, however, when obstetric beds were available for 100% of births, only women who opted out of consultant care were not supervised by an obstetric consultant team (Towler and Bramall, 1986).

The link between the availability of resources - in this case beds and obstetric units - and the use of such resources can be explained as a circular causation. In this case shortage of obstetric beds at the time of a 'baby boom' in the late 1950's and early 1960's meant that women who were in need of a bed had to deliver at home. This led to the building of modern obstetric units. When births returned to pre boom levels women were booked for hospital deliveries because beds were available for 100% of births. Women who had previously been considered suitable for home birth had to justify their suitability and opt out of a hospital birth. Most midwives became part of an obstetric team with a Consultant Obstetrician at the head. Midwives predominantly carried out the care women received from such teams, while Consultant Obstetricians claimed responsibility and overall control of resources and cases. The development of such teams was accompanied by a philosophy in which 'birth can only be defined as normal in retrospect' that dominated the maternity services at that time (Towler & Bramall, 1986). In such circumstances it was rare for midwives to work autonomously.

The development of the maternity services in the UK has reflected an attempt to reduce mortality by increasing the numbers of consultant unit births. This is affiliated with a philosophy that birth is a hazard that resembles a medical condition and as such it requires management and medical intervention. The policies and views of childbirth reflect assumptions made prior to the 1980's about the evidence from mortality statistics. The following section examines and evaluates this evidence.

Evaluating the Assumptions of Maternity Care in the UK

It would be expected that the sustained transformation of maternity care from a community service provided mostly by midwives to a hospital service supervised by a consultant obstetrician would be based upon sound evidence of improved mortality rates. However this is not the case. A medical statistician (Marjory Tew) has systematically identified discrepancies between the evidence in the form of maternal and perinatal mortality rates, and the policy for the development of the maternity services in the UK experienced as a hospital birth associated with escalating medical intervention (Towler & Bramall, 1986; Tew, 1986; Tew, 1995).

There appears to be statistical evidence supporting the links between medical involvement and intervention in birth, and increasing maternal mortality. However, according to Tew (1986) doctors consistently rejected the evidence that they were having a negative impact on mortality rates as 'repugnant to theoretical reasoning'. Instead they explained their failure to improve mortality rates as due to midwives e.g. for calling the doctor late. Instead of accepting that medical care was not beneficial they argued that hospital beds for high-risk cases would make prompt intervention more feasible and also provide a better opportunity to train medical students (Tew, 1986).

It is interesting that in the 1920's when there was no evidence to support the effectiveness of medical intervention in reducing mortality rates that resources should be used for obstetric beds (Tew, 1986; Towler & Bramall, 1986). However, policy makers at the time must have been influenced by obstetricians, who were likely to site reasons for failure on less powerful midwives and the need for more effective training of medical students (Towler & Bramall, 1986). This is an example of one kind of knowledge gaining ascendancy and legitimacy because structural superiority leads to a devaluing and even dismissing of an alternative kind of knowing. It is accepted that in the 1920's medicine had a stronger power base and as the alternative knowledge systems of midwives and women was based on proximity, observation and experience which was not accessible to medical men this knowledge was dismissed as irrelevant

(Mitchel & Oakley, 1986; Hugman, 1991). What midwives or women may consider to be important for childbirth is therefore viewed as *'irrelevant, unfounded and not to the point'* (Jordan, 1997, p56). Identification of obstetricians/gynaecologists as a branch of medicine under the 1858 Medical (Registration) Act and simultaneously the exclusion of female midwifery (Witz, 1992) contributed to 'cultural authority' for obstetricians; in that they came to be in charge of creating and representing the facts (Jordan, 1997).

Despite resources being diverted to obstetric care and training, according to Tew (1986 & 1995) evidence from maternal mortality rates consistently demonstrated that obstetric intervention resulted in greater mortality. This fact was clouded by other changes in social circumstances or care provision that influenced mortality rates in a positive way, such as medical abortion and contraception increasingly available from the early 1970's. For example, the mortality associated with abortion fell from 25.3 per million estimated pregnancies between 1970 - 72, to 10.5 between 1973 - 75 and 6 between 1976 - 78. The improvements in mortality rates due to these services and the falling mortality associated with high parity masked the problems of intervention, such as increasing rate of deaths due to rupture of the uterus or haemorrhage in the early to mid 1970's (Figure 2.3).

In 1970 the Peel Report (Tew 1979) and in 1980 the Social Services Committee (Chaired by Short) (Towler & Bramall, 1986) accepted the 'safety of hospital' for birth and they anticipated that more obstetricians, paediatricians and machines would reduce the Perinatal Mortality Rate to almost zero. A medical research statistician, Marjorie Tew had discovered that the correlation between the hospital confinement rate and perinatal mortality rates was so low that it was not statistically significant. The data from the 1958 Perinatal Mortality Report (Tew, 1986) demonstrated that the profile of mothers booked for hospital delivery for high risk factors (e.g. parity, social class and pre-eclampsia) was not significantly different to those booked for community delivery in General Practitioner Unit or home; yet the mortality rates in hospital were considerably higher. Tew had published a paper to this effect in 1977. She then used all

available statistics, also taking into account such variables as the actual place of birth compared with the intended place of birth and concluded that there was no causal relationship between hospital birth and lower perinatal mortality rates. A paper with these results was published in a medical journal in 1978. Tew was therefore surprised with the goal of 100% hospital confinement (Towler & Brammall, 1986).

According to Towler and Bramall (1986) in 1981 Tew found no statistical evidence to support intensification of hospitalisation and sent a letter to the *Guardian* newspaper in which she reported that:

'Birth in an obstetric hospital is much less safe not only for normal births, but also for many births with some kind of abnormality' (Towler & Bramall, 1986, p283).

The data collected on perinatal mortality rates and place of birth between 1969–81 separately distinguishes consultant hospitals. Analysis of the data in Figure 2.6 *'shows that the years when the percentage of births in [consultant] hospital increased most were the years when the perinatal mortality rate decreased least and vice versa, so that the statistical correlation between the trend is very significantly negative.'* There is a correlation coefficient for this data of -0.87 ($P < 0.001$) (Tew, 1986).

Tew revealed that the assumption that a perinatal mortality rate that was gradually reducing over time was attributable to consultant hospital delivery and medical intervention was not justified and there had been a failure to analyse statistics appropriately to justify the assumptions of policy makers and obstetricians. A gradual fall in the perinatal mortality rate could be explained by improving social factors and is also to be found in rates for the developing world where medical intervention and health care was minimal (Tew, 1986). Given the improved social conditions in the UK, Tew argued that:

'The PNMR would have decreased more if the proportion of births subject to intervention had not increased.' (Tew, 1986)

The conclusions that were reached by Tew (1986) were similar to those of Ashford (1979) who concluded that increases in hospital confinement rates after 1967 were counter productive to further reductions in perinatal mortality.

Figure 2.6: Trends in perinatal mortality and hospitalisation, England and Wales

Year	Actual	<u>Perinatal mortality per 1000 births</u>		<u>Births in consultant hospitals</u>		% change % of all births
		% change from year before	Rank of change	Rank of change	from year before	
1969	23.4					69.6
1970	23.5	+0.4	12	1 $\frac{1}{2}$	+4.9	73.0
1971	22.3	-5.1	7	5	+3.6	75.6
1972	21.7	-2.7	11	4	+4.2	78.8
1973	21.0	-3.2	9	3	+4.4	82.3
1974	20.4	-2.9	10	1 $\frac{1}{2}$	+4.9	86.3
1975	19.3	-5.4	5	6 $\frac{1}{2}$	+1.8	87.9
1976	17.7	-8.3	4	12	+0.5	88.3
1977	17.0	-4.0	8	6 $\frac{1}{2}$	+1.8	89.9
1978	15.5	-8.8	3	8	+1.4	91.2
1979	14.7	-5.2	6	9 $\frac{1}{2}$	+1.2	92.3
1980	13.3	-9.5	2	9 $\frac{1}{2}$	+1.2	93.4
1981	11.8	-11.3	1	11	+0.9	94.2

Source: Registrar General and Birth Statistics (Tew, 1986)

Further evidence for the risk of obstetric care came from the 1970 survey of British Births. A labour prediction score was used to identify degree of risk in respect of factors such as previous obstetric history, antenatal problems and problems in the first stage of labour (e.g. previous Caesarean section, antepartum haemorrhage, hypertension, and fetal distress). Each birth was given points, and these were summed to indicate the overall risk for each birth. Births were then classified into subgroups of births with the same score and then subdivided to reflect the place of birth. This made it possible to compare births with the same pre-delivery risk but subject to different methods of care (Figure 2.7).

The results in Figure 2.7 show that as the degree of risk increased so does the proportion of births in hospital. This finding reflected the then current maternity services' policy of ensuring that high-risk cases should benefit from consultant unit delivery. However, the perinatal mortality rate was higher in consultant hospitals at every level of risk. The rate was twice as high for very low risk, and much greater in the low, moderate and high-risk group. It was also higher in the very high-risk group, but Tew concluded that this might be due to chance as only 15 of the births were not in

consultant hospitals. What was intriguing was the Perinatal Mortality Rate was lower for high-risk births in General Practitioner Units and home than for low risk births in hospital. It appears from the similar perinatal mortality rate for levels of risk very low, low and moderate, that the care provided in General Practitioner Units and home succeeded in overcoming a range of predicted risks. This is different from hospital deliveries where the perinatal mortality rate multiplies as the Labour Prediction Score increases suggesting that intranatal care used in hospital intensify the risk (Tew, 1986).

Figure 2.7: Births and perinatal mortality rates by labour prediction score (LPS) and place of delivery

Level Of Risk home	LPS	<u>All births</u>		<u>% at each score</u>		<u>PNMR / 1000 births</u>	
		Number	Percent	Hospital	GPU & home	Hospital	GPU &
Very Low	0-1	7488	45.9	58.7	41.3	8.0	3.9*
Low	2	3723	22.8	68.8	31.2	17.9	5.2**
Moderate	3	2273	13.9	76.6	23.4	32.2	3.8***
High	4-6	2417	14.8	84.0	16.0	53.2	15.5**
Very High	7-12	417	2.6	96.5	3.5	162.6	133.3

Levels of significance: * p<0.05, ** p<0.005, *** p<0.001. GPU and home includes GP beds in consultant units.

Source: British Births 1970 unpublished survey data (Tew, 1986)

The care provided in hospital is associated with intervention and there is evidence that this has a detrimental effect on perinatal mortality rates. For example the increase in the rate of induction that was 13.4% of births in 1964, increased to 39.4% in 1974 and then maintained levels of about 37%, decreasing to 18.8% in 1982 (Tew, 1986). According to Tew the years when the induction rate increased most were usually ones where the perinatal mortality rate decreased the least. This implies that it would have decreased more if fewer births had been induced.

The earliest involvement of 'male accoucheurs' in the care of affluent, healthy mothers was associated with higher maternal death rates than the maternal population cared for by midwives. According to Tew (1986) this does not reflect the general experience that mortality and morbidity are associated with poverty. Mortality rates for affluent, healthy mothers should be favourable if compared with their poorer less healthy

contemporaries, and as this is not the case, it can be argued that the care provided by 'male accoucheurs' must have been detrimental compared with care provided by midwives. It has been widely accepted that it was not medical care itself but rather the skills that are used that contribute to higher mortality. As a result of this belief development of the maternity services since the early 1900's has supported better training for medical staff and midwives in obstetric care as it was believed that this would reduce perinatal mortality rates. However, despite intervention after 1969 being sophisticated, precise and hygienic, the effect of intervention on mortality rates was the same as in earlier periods; it can be assumed that intervention makes birth less safe than it would otherwise be. Tew believes:

'It is intervention itself, and not simply the quality of it, which increases the danger.'
(Tew, 1986)

Interventions such as induction are frequently followed by other interventions such as analgesia, epidural, fetal monitoring and surgical delivery, which are also used after spontaneous onset of labour. This explains the stronger negative correlation between Perinatal Mortality Rate and hospital delivery rate than between perinatal mortality rate and induction. According to Tew, hospitalisation is the proxy for intervention as a whole (Tew, 1986).

Tew's analysis of mortality statistics demonstrates that for the uncomplicated pregnancies that make up 75% of births, intervention in the childbirth process even if skilfully carried out increases the danger. Statistical analysis of the data published from the 1958 and subsequent surveys of perinatal mortality rates did not support the assumption that higher hospital mortality reflected the proportion of high risk pregnancies booked for hospital birth. Instead analysis of perinatal mortality rates confirmed evidence from Maternal Mortality Rates of earlier centuries that mortality is greatest when intervention is most used (Tew, 1986). It seems probable that the existence of complications of pregnancy may justify obstetric intervention in the same way as other medical pathology justifies medical intervention. However, it may be necessary to differentiate between cases where complications have developed and treatment is indicated and those in which complications are anticipated. This is because

Tew proposes that there is evidence to indicate that at every level of risk the perinatal mortality rate is higher in consultant obstetric hospitals, and that obstetric methods of intranatal care intensify risk (Tew, 1986).

The evaluation of mortality statistics undertaken by Tew does not identify improved mortality rates with consultant unit delivery and medical intervention for women without complications. Moreover, the group of low risk women who are estimated to make up at least 75% of the pregnant population are subject to higher rates of maternal and perinatal mortality as a result of consultant obstetric unit delivery with its associated intervention by the obstetric team. The historical evidence suggests that midwives could positively influence mortality by providing intrapartum care that supports the physiological processes of childbirth and avoids unnecessary obstetric intervention associated with consultant hospital delivery. Tew's work emphasises the importance of interpreting evidence correctly when planning major changes in service and being aware of the professional bias of individual who are interpreting evidence.

Understanding the relative contribution of physiological management to mortality rates is a factor that should drive the development of practice in the maternity service in general, and in particular the type of service that midwives provide.

ii) Practice Drivers for the Development of Intrapartum Care

The reliance of midwives on routine assessment of cervical dilatation reflects an approach to intrapartum monitoring that was adopted in Consultant Obstetric Hospitals in the late 1960's onwards. Active management replaced a more conservative approach that was largely retained for use by midwives within an ever-dwindling community practice base. As a result of gender power dynamics active management and medical and scientific theories that accompanied consultant hospital management of labour gradually came to dominate the work area and the education of midwives. This change appeared to be supported by evidence linking improved mortality rates with consultant care, and because of this and a desire to reduce mortality further, a relative lack of

power and the acceptance of change by society, midwives adopted the new approaches. On a case by case basis Consultant policies became the standard by which midwives practised (Towler & Bramall, 1986). With more apparent choice in how to practice (DOH, 1993; DOH, 2003), contemporary midwives now seem reluctant to give up routine assessment of progress (Mead, 2003; Sinclair, 1999; Stuart, 2000; Sookhoo & Biott, 2002). This may reflect local protocols, pressures such as produced by risk management strategies and NICE⁵ guidelines, or lack of confidence in alternative skills (DOH, 2003).

In the absence of a full appreciation of the implication of intrapartum intervention the aim of intrapartum management changed during the 1960's and 1970's to preventing prolonged labour by routinely reducing the length of labour for many women (Llewellyn-Jones, 1982). Prolonged labour requires medical treatment and intervention if the health of mother and baby are affected or if it is caused by obstruction (due to cephalo-pelvic disproportion or malpresentation), in which case delay can have serious consequences, such as rupture of the uterus and haemorrhage. Historically it had not been unusual for labour to last more than 48 hours at the beginning of the 1900's, but work undertaken on the length of labour demonstrated that a first labour usually lasts 13 hours and subsequent labours 8 hours. According to Llewellyn-Jones (1982) by the time 18 hours have passed 85-95 % of primigravida⁶ and 95-98 % of multigravida⁷ will have given birth. In the 1970's, 18-24 hours in labour was accepted as prolonged. Even if no obvious problems with mother and baby existed, women would be transferred for consultant assessment, treatment and management of labour. However, identifying those labours that are outside 'accepted' duration and are therefore prolonged⁸, is dependent upon the observation skills of the birth attendant and because of the

⁵ NICE - The National Institute for Clinical Excellence produces guidance that represents its view of the evidence available. Health professionals are expected to take it fully into account when exercising their clinical judgment (Clinical Guideline 13, Caesarean Section: quick reference guide, April 2004).

⁶ Primigravida - A woman pregnant for the first time.

⁷ Multigravida - A pregnant woman who has had one or more previous pregnancies.

⁸ Prolonged Labour - If labour is prolonged it can cause maternal death due to infection, shock due to trauma at delivery, ruptured uterus, and post partum haemorrhage. The risk of fetal death is greatly increased and is associated with pneumonia, intra-uterine infection, hypoxia and traumatic delivery.

variable and unpredictable nature of childbirth, a diagnosis is only truly possible in retrospect.

Concern for prompt intervention in cases of diagnosed prolonged labour developed into obstetric practice where attempts were made to monitor the process of labour and intervene in cases of slow labour, in order to prevent prolonged labours. This is referred to as active management of labour. Attempts to minimise referral time have had implications for the choice of birth location and birth experience for most women. In the UK active management of labour was initially only applied to clients defined as consultant unit cases, i.e. those booked in consultant unit for delivery (Llewellyn-Jones, 1982; Tew, 1995). Those women who elected to receive care in the community, either with delivery in their own home or in a General Practitioner unit, were managed 'conservatively'.

The late 1960's and early 1970's was a period of marked transition as obstetricians became involved in more cases although midwives continued to provide care and carry out most of the deliveries. According to Towler and Bramall (1986, p259) 'a childbirth revolution took place in the 1960's and early 1970's'. Change in hospital practice resulted in midwives who trained during this period seeing their role as *'that of an assistant to the doctor, a machine minder or technological handmaiden'* (Towler & Bramall, 1986, pp259-260). These changes were linked to the development of a biomedical approach to preventing mortality and morbidity, which reflected a transition whereby assessment replaced care as the dominant form of health intervention. New concepts in the management of labour were introduced in the form of active management (Llewellyn-Jones, 1982), which adopted cervical dilatation (Cardozo *et al*, 1982; Ledger & Whitting, 1972) as an objective indicator of progress. It required the use of tools such as partograms to monitor progress against population norms (Philpott & Castle, 1972), and the intervention, augmentation or acceleration of labour by means of Artificial rupture of membranes⁹ and intravenous oxytocin when cervical dilatation

⁹ Artificial rupture of membranes - surgical procedure to break the sack of fetal membranes.

was progressing more slowly than expected (Beazley & Kurjak, 1972; Fraser *et al*, 1998; O'Driscoll *et al*, 1973).

A changed intrapartum experience for most childbearing women was linked to the widespread adoption of charts that provided graphic representation of dilatation rates for the cervix of the uterus and descent of the fetus through the pelvis. Using graphs to plot cervical dilatation and descent of the fetal head at frequent intervals in large samples of women, led to the development of expected labour trajectories that incorporated phases of cervical dilatation described as 'latent' (0 - 2 cm) and 'active' phases (2 - 10 cm). The 'active phase' incorporates phases of 'acceleration' (2 - 4 cm), 'greatest progress' or 'maximum slope' (4 - 9 cm) and 'deceleration' (9 - 10 cm) (Beazley & Kurjak, 1972; Philpot & Castle, 1972). These graphs were referred to as partographs (Beazley & Kurjak, 1972) cervicographs (Philpot & Castle 1972) or partograms (Towler & Bramall, 1986). Progress of labour that included objective measures and subjective responses of the mother had formerly been recorded in words and described, but with the introduction of partograms a graphical recording of physical data was produced. This made a narrow view of progress easier to see at a glance, while at the same time separating off progress from the reactions and experiences of the mother and the midwife providing care.

This mechanistic approach to monitoring progress was linked to an aggressive regime of monitoring and intervention. Parameters for labour progress were identified with limits (Figure 2.8) that represented 95 percentile cut off points, which was the duration of stages of labour for 95% of the populations sampled (Friedman, 1983, p14):

Figure 2.8: Duration for Labour Phases

Phases of Labour	Nulliparas ¹⁰	Multiparas ¹¹
Latent phase (in hours)	20.0	14.0
Maximum slope of dilatation (in cm / hour)	1.2	1.5
Deceleration phase (in hours)	3.0	1.0
Maximum slope of Descent (cm/hour)	1.0	2.0

¹⁰ Nullipara - a woman who has never given birth to a viable child.

¹¹ Multipara - a woman who has borne more than one viable infant.

However, it was recognised that there is considerable variation between women, for example, Friedman reports an average latent phase of 9 hours for nulliparas. In addition the problem of accurately defining the commencement of labour, because the cervix is usually not closed in a term pregnancy and women present at different times in labour makes it necessary to adopt an arbitrary commencement point to begin timing. Such as from clinical history of commencement reported by the woman (Ledger & Whitting, 1972), from the time when the woman is admitted to the labour ward (O'Driscoll *et al*, 1973), or cervical dilatation of 2cm (Beazley & Kurjak, 1972).

Partograms also charted descent of the fetal head, measured by abdominal palpation or station of the head measured on vaginal examination. Descent is represented as the amount of the fetal head palpable¹² above the pelvic brim, and station is the position of the head in relation to the ischial spines of the pelvis¹³. Gradual descent occurs throughout labour, and is more rapid towards the end of the first stage and the second stage of labour. For this reason it is not so useful when assessing the progress of early labour. Changes to the cervix that were readily discernable throughout labour provided information intermittently and reduced reliance on the holistic observational skills that were associated with midwifery care and when this technology was combined with partograms it provided a basis for a new approach to care in active management of labour.

Active Management of Labour

Active management was the dominant form of 'management' adopted in the 1970's for women giving birth in consultant units. This approach to intrapartum management replaced care that supported, encouraged and observed the physiological processes, and provided for physical and emotional needs. Active management is characterised by an inherent belief that childbirth is inefficient and must be managed, time limits for progress based on population norms, reliance on measurements that are considered to be scientific and more precise and intervention when the physiological processes of

¹² Descent of the Fetal Head - measured in 5ths of the head palpable. As the head descends into the pelvis, less of it can be felt abdominally.

birth do not keep pace with population norms. The purpose is to prevent prolonged labour by identifying potential delay using routine examination of the cervix for dilatation, plotted on a partograph and intervening early by carrying out Artificial rupture of membranes and administering intravenous Syntocinon. Such procedures are frequently accompanied by electronic fetal monitoring as they lead to a cascade of intervention and fetal problems.

Active management of labour was increasingly common across the UK in the 1970's and this was influenced and encouraged by the reported success in the USA (Ledger & Witting, 1972), Rhodesia, Africa (Philpott & Castle, 1972) and Dublin, Ireland (O'Driscoll *et al*, 1973). A study in Queen Charlotte's Maternity Hospital, London, by Beazley and Kurjak (1972) used information from obstetric records in a retrospective comparison of pregnancy events and outcomes between 1971 and 1972, when partograms were introduced on the labour ward as part of active management. There was a considerable reduction in the duration of labours between the two periods and 82.2% of primigravida had their labour accelerated using oxytocin in 1972 compared with 8.8% in 1971. While the changes in the incidence of Caesarean section, post-partum haemorrhage, manual removal of placenta and fetal acidosis were not statistically significant, there was an increased incidence. Between the periods 1971 to 1972: Caesarean sections increased from 2.6 to 4.7%, forceps deliveries from 47.4 to 59.7% and fetal distress from 40.4 to 52.9%. This study identified that there were statistically significant increases for multipara, in the rates of depressed babies at birth and in the number of forceps deliveries. It was proposed that in the multipara, oxytocin acceleration might allow insufficient time for the normal mechanism of labour to occur.

O'Driscoll *et al* (1973) reported on a study of labour conducted at the National Maternity Hospital, Dublin, where expectant mothers were given assurance that their labour would be actively managed, and would not exceed 12 hours duration. Cervical dilatation was plotted on a graph and unless dilatation exceeded 1cm each hour, labour was accelerated by artificial rupture of membranes followed by oxytocin infusion after

¹³ Station of the Presenting Part - Station zero is at the ischial spines. Station is measured in 1 - 3 centimetres above (-) and below (+) the spines.

a further hour. This means that women were having vaginal examinations every hour. According to the authors in this hospital every labour was controlled and treated as *'an intensive care situation in which every patient has a personal nurse'*. O'Driscoll *et al* argue for the necessity of a 'personal nurse' to assist with pain, reduce emotional trauma and manage the intravenous infusions, and consider that this is only possible if labour is concluded within 12 hours. O'Driscoll *et al* (1973) recognised that conventional lay and medical attitudes were based on an assumption that labour is open-ended and not subject to control, but their view was different, as they state that: *'... almost all the complications of labour are secondary phenomena, themselves products of passive management.'* This demonstrates a view of birth as a medical problem in which medical management is essential and this view was to dominate the 1970's.

Concerned about the diminishment of physiological labour in 1974 and the implications for eroding the skill of midwives, the Central Midwives Board issued a statement of policy and stressed that:

'... pupil midwives must receive instruction in the management of natural birth in addition to active management techniques' (CMB cited in Towler & Bramall, 1986, p261)

Although providing care in the community for physiological birth was still important to midwives and general practitioners, active management became accepted as an integral part of obstetric care. Most medical staff accepted that obstetric care was contributing to improved mortality rates (Tew, 1986) although there was some scepticism about the contribution relative to improved social conditions (Towler & Bramall, 1986). Nevertheless the numbers of physiological births were reducing and midwifery students were more familiar with managed birth.

By the 1980's obstetric care had embraced active management and the use of the partogram to plot the course of cervical dilatation. Concern during the 1980's was with the reliability of tools to assess progress and accuracy, reproducibility of cervical measurements and the benefits and problems with intervention in categories of delay.

Identifying dysfunctional labour and implementing intervention

A study by Cardozo *et al* (1982) examined the outcome of 684 primigravid women admitted in spontaneous labour according to their cervimetric progress during the first stage of labour. Six classifications of progress were identified according to cervical dilatation rates. Labour was identified as dysfunctional if cervimetric progress strayed more than 2 hours to the right of the normogram¹⁴. Labour was then augmented with intravenous oxytocin after confirming the membranes were ruptured and excluding malpresentation¹⁵ of the fetus. Of the 684 primigravida, 63.9 % (437) had a normal labour pattern and of these 80.6% (350) had spontaneous vaginal deliveries. The remaining 247 primigravida (36.1%) had intravenous oxytocin (Figure 2.9).

The 'normal patients' that did not receive oxytocin had a Caesarean section rate of 1.6%. In the remaining groups that had oxytocin the operative delivery rate was higher. The group with a prolonged latent phase had a Caesarean Section rate of 16.7% and the highest rate (37.5%) of low Apgar scores¹⁶ (≤ 6) for babies at 1 minute. The authors conclude that a more conservative approach to care and monitoring may be required for this group. For the remaining groups correcting cervimetric progress using oxytocin reduces the length of labours, operative deliveries and is most favourable for babies. This means that of 684 primigravida in the study 461 (67.4%) would be expected to have better outcomes with 'conservative' rather than 'active' management of labour.

Figure 2.9: Patterns of labour distinguished according to cervimetric progress.

Groups	No.	% of total
Total Sample	684	100.0
Normal Labour Pattern	437	63.9
Labour pattern identified as abnormal & administered oxytocin	247	36.1
• Prolonged latent phase	24	3.5
• Primary dysfunctional labour that responded to oxytocin	145	21.2
• Secondary arrest that responded to oxytocin	26	3.8
• Primary dysfunctional labour that did not responded to oxytocin	35	5.1
• Secondary arrest that did not responded to oxytocin	17	2.5

(Cardozo *et al*, 1982)

¹⁴ Normogram - of expected labour progress drawn from the labour stencil (Studd and Duignan, 1972)

¹⁵ Malpresentation - where the leading part of the fetus is not cephalic (head).

¹⁶ Apgar Score - an assessment of the condition of the baby based on physiological criteria within a few minutes of birth, so that severe asphyxia can be diagnosed and treated.

Although the authors argue that 223 primigravida (32.6%) that make up the other groups benefit from active management, 52 (7.6%) did not have improved dilatation with oxytocin. This means that only 171 primigravida (25%) had an 'improved rate of cervical dilatation' with active management. In contrast to the views of O'Driscoll *et al* (1973) the study by Cardozo *et al* (1982) demonstrates that 171 (24%) women appear to have benefited from oxytocin. Active management does not necessarily produce better results in this sample of women than expectant management if the group is considered as a whole, however there is the clinical issue of identifying risk for individual women. This study raises the issue of the uncertainty about interpreting cervical dilatation. In particular the group classified as prolonged latent phase (24 cases) had a high rate of surgical delivery and low Apgar scores. It is possible that this group could have been in the early stages of a slower normal birth process than is experienced by most of the population. It is also possible that there were inaccuracies in measuring cervical dilatation.

Measuring cervical dilatation

Assessment of the cervix is considered '*the cornerstone of the management of labour*' (Tuffnell *et al*, 1989). The degree of accuracy in assessment of cervical dilatation was brought into question by a study by Tuffnell *et al* (1989) who compared a group of 36 midwives and 24 obstetricians to assess error in and between observers. Results demonstrated that on a set of simulators no observer was correct in every case, and while there was no significant differences between midwives and obstetricians, midwives were more likely to be inaccurate by more than 1 cm for dilatation and more frequently inaccurate for effacement. Inaccuracy was greatest in simulators 5-7 cm dilated. Consistency in results for a single professional was achieved in 20 of the 60 examiners. According to these authors labour management is based on assessment of the cervix and the results of the study suggest room for improvement.

This study highlights the difficulties of accurate cervical assessment in active management of labour. However, I doubt that it is possible to improve consistency in cervical assessment. As Figure 2.9 illustrates estimating dilatation of the cervix is difficult. It becomes even more difficult as the cervix dilates and the head descends,

when it is only possible to feel around the head. According to Towler and Butler (1980) it is impossible to measure dilatation beyond 6 cm. It is not explained if this is anatomically impossible or if reliability is questionable (See Figure 2.10). At this point they say it is practice to record the amount of cervix that can be felt as a 'thick rim' or a 'thin rim', 'a lip' or 'no part of the cervix can be felt' (p325). When a partogram is used dilatation is recorded and in order to accommodate this an estimate is made of how much cervix remains, and this is used to estimate how much cervix must be dilated. Given the unreliability of the tool it is not surprising that inaccuracy exceeded 1cm in the study by Tuffnell *et al* (1989) even if a simulator was used. Additional factors such as levels, compliance and relaxation on the part of the woman and the stretch of the cervix influenced by the presence and absence of uterine contractions are likely to produce even greater inaccuracy in clinical assessment.

Figure 2.10 illustrates the difficulties inherent in measuring cervical dilatation and the previous discussion demonstrates that the problems with active management are associated with accepting the difficulty of accurate cervical assessment based on subjective measurement and the problem of deciding when it was necessary and beneficial to intervene in the birth process.

Figure 2.10: Personal reflection on estimating cervical dilatation

The measurement of how dilated the cervix is must be made with the tips of two fingers (index and middle) that are of different lengths and that vary in size between individuals. During a vaginal examination the breadth of the fingers are used to estimate dilatation and converted into a metric measurement. The tip of my middle finger is 1cm and the width of both fingers together is 3cm. Towler and Butler (1980) who describe 3 finger breadths as equal to 4.5cm and 4 finger breadths as equal to 6 cm confirm this. Individual experience in carrying out vaginal examination leads to ways of estimating this. Distances above 3cm involve an estimate based on a perception of stretch experienced between the ligaments of examining fingers, indicating the distance of the spread between them which is used to estimate dilatation. From 3 - 5cm my fingers are not separated much, at 8 cm there is quite a pull on the ligaments, but 6 and 7 cm are hard to distinguish.

Evaluating and Implementing Expectant Management in Intrapartum Care for Low Risk Cases.

In the 1990's active management of labour continued to be the main focus for intrapartum care, but there was much more emphasis on questioning the effectiveness of the strategy. In part this resulted from a developing scepticism about the espoused

benefits of intervention leading to a different emphasis in analysing results of studies. This was particularly the case for low risk women and providing a different level of intervention for this group was increasingly seen as feasible and desirable.

A review of the literature by Thornton (1996) refuted the claims of proponents of active management that active management of labour reduced Caesarean section rates. Centres that used minimal intervention reported lower rates of Caesarean section than were found in centres such as Dublin that had an aggressive policy of active management. Evidence from trials found no significant difference between cases in active management groups and groups with a selective policy of intervention. Thornton (1996) advised units practising active management to review their policy and only perform amniotomy and oxytocin acceleration selectively, if at all. He also advised units that were already using acceleration selectively to consider randomising half of their mothers to a genuinely conservative regimen. Concern about the extent of intervention and birth technology was being expressed and explanations for this were being sought (Tindal, 1995; Williams *et al*, 1998; Thornton, 1996). In particular alternatives to the use of cervical dilatation were considered by midwives (Byrne & Edmonds, 1990; Hobbs, 1998; McKay & Roberts, 1990, Baker & Kenner, 1998) because of the problems associated with the intimate nature of vaginal examination (Clements, 1994; Kitzinger, 1997).

Two studies in the 1990's investigated intrapartum intervention in low risk primigravid women. The first was a national study by the Clinical Standards Advisory Group on Women in Normal Labour carried out on 5000 women in consultant and general practitioner units across the UK (Tindall, 1995), and the second involved 2816 women (Williams *et al*, 1998). The combined results from these studies demonstrate a substantial incidence of intervention for low risk primigravida with spontaneous onset of labour. Artificial rupture of membranes was used with 58% of women and oxytocin was used separately or in combination with Artificial rupture of membranes with 26.5%. In the first study 27% of women requested Artificial rupture of membranes and 34% of women in the study had Artificial rupture of membranes at 4cm dilatation of the cervix or less. Fetal monitoring (continuous electronic or fetal blood sampling) was used in the

first stage of labour with 52.3% of women and in the second stage with 55.3%. Reasons given for this were fetal distress (41.5%), maternal epidural analgesia (22%), augmentation of labour (17%) and unit policy (11%). Continuous cardiotocograph monitoring is not recommended for low risk women because it restricts movement, interferes with comfort and increases the risk of Caesarean section and operative vaginal deliveries (Williams *et al*, 1998).

In Tindall *et al*s (1995) study the birth outcome for the baby resulted in 3149 (99.7%) livebirths and 11 (0.3%) where the outcome was not reported, although there were no deaths. By 10 minutes 96.1 % of babies had an Apgar score of 9-10, meaning that 129 (3.9%) babies required some form of assistance with adaptation to the extra uterine environment.

Caesarean Section and episiotomy rates from both studies were the same at 6.2% (485) and 46% (3595) respectively. This means that of 7816 women in both studies 52.2% (4080) had a surgical incision. The Tindall Report (1995) indicated that 18.7% of women had an assisted birth involving forceps or ventouse and as it is almost certain that they would involve episiotomy, this means that 24% of episiotomies were associated with the spontaneous vaginal births that accounted for 74% of the total births.

The number of vaginal examinations performed is expected to be related to the duration of labour. In the studies an assumption was made that each woman would have a vaginal examination on arrival to the delivery ward and then at 3-4 hourly intervals. The minimum expected number was calculated by dividing the length of each woman's labour by 4 and adding 1, to account for admission examination. Although the expected numbers calculated reflect the minimum number of examinations required within active management 71.5% (4071) of women had more than expected. In one study 20% had the expected number and 9% had fewer (Tindall, 1995). In the other study the proportions having more than 5 examinations is 12% (338) and having no vaginal examinations is only 0.6% (20) (Williams *et al*, 1998). According to the Tindall Report (1995) the main reason for performing a vaginal examination was to assess the onset of

labour and to assess progress. A partogram was used in this particular study for 87% of women.

The results from the two studies (Tindall, 1995; Williams *et al*, 1998) demonstrate that low risk women have high levels of intervention in the physiological process of birth. This is despite a lack of evidence to support the benefit of active management and routine intervention in this group of women and the indications that conservative management may produce better outcomes and a more positive experience for women (Thornton, 1996).

Midwives and Birth Technology

There seems to be little evidence that midwives are resisting intervention and technology in childbirth. A study carried out in Northern Ireland by Sinclair (1999) investigated midwives perception about the use of technology in childbirth and the extent to which they feel competent in using it. Methods incorporated observation of 17 induced deliveries in 9 obstetric units and a postal questionnaire to all midwives practising in Northern Ireland (1086) investigating attitudes, competence and patterns of usage. The majority of midwives were comfortable using technology in the labour ward, especially Cardiotocographs. They rejected ideas of over-dependence on technology and that it undermined the midwives position, rather it was thought to focus and sharpen their practice. It was seen as an electronic window between midwives and women. The window was on the body processes and was 'interpretative' and 'revealing'. Midwives were aware of the potential problems of technology and a need for training was identified along with curriculum implications for students. Sinclair (1999) considers that '*technology puts midwives on a par with medical colleagues*' (p178) and because of this and '*deskilling as a result of dependence on technology*' (p178) midwives were reluctant to give it up. Deskilling was considered to be '*a real threat for some midwives*' (p 178), and Sinclair considers that '*skills involved in midwifery and obstetrics may actually be declining as a result of over dependence on technology*' (p 180). As a result of using technology to such an extent midwives may have been '*less willing to make independent clinical judgements based upon their own abilities and experience*' (p180).

This study raises some interesting issues about the importance of experience in intrapartum care and judgement. However, observing induced births may increase the observed incidence of use of technology by midwives. After all, induction of labour involves the use of artificial rupture of membranes and or intravenous oxytocin. These obstetric interventions, even if carried out by midwives, alter the process of birth by augmenting the physiological intrapartum process. In such circumstances technology plays a greater role than would be expected when labour is spontaneous and non augmented, and midwives are responsible for care. However, evidence exists to suggest that midwives may be resisting changes in practice that involve a reduction in intervention. The extent to which labour ward protocols are responsible for this is unclear. Certainly the Tindall Report (1995) found most of the protocols for normal childbirth reflected active rather than expectant management of labour, and prioritised progressive cervical dilatation over other criteria. The level of intervention reported in the study by Tindall (1995) is reflected in the protocols for normal labour from the sample of maternity units. All state that a vaginal examination should be used 3-4 hourly to assess progress and confirm labour, to exclude cord prolapse when membranes rupture and to confirm full dilatation of the cervix. First stage management has variation, but 73% adhere to a regime of active management of labour. When Artificial rupture of membranes should be undertaken by midwives varies between 6-7cm (63%) and 3-4cm (a few). Continuous fetal monitoring is not considered necessary in normal labour in 80% of protocols except in case of risk factors, sytocinon administration or epidural analgesia. A table with criteria for diagnosing labour reflecting the 48 protocols in the study has been produced (Tindall, 1995, p4) (Figure 2.11):

Figure 2.11: Criteria for diagnosis of labour in primigravida

Regular uterine contractions (1 in 10 minutes or more frequently)

Plus one of the following:

- Spontaneous rupture of the membranes
- Cervix effaced ('taken up') and more than 3 cm dilated with or without a 'show' (discharge of mucus and small quantity of blood)
- Progressive dilatation of the cervix over 2 hours.

As normal childbirth is infrequently associated with early spontaneous rupture of the membranes the criteria requires midwives to undertake vaginal examination to confirm the onset of labour. This is an example of prioritising medical criteria within protocols that direct midwifery practice. It is evidence that midwives have local expectations that confine their freedom to develop and use midwifery skills that provide an alternative type of care for women in keeping with expectant management of labour.

The literature demonstrates that Consultant Obstetric Hospital birth and intervening in physiological processes unnecessarily would seem problematic. For example, attempting to accelerate the course of labour if mother and fetus are healthy and the mother is coping and confident. That birth in a hospital is less safe for most women does not mean that there is no place for highly technological intervention when medical and obstetric complications are present. However, that highly technological care is more 'risky' for most women is relevant in planning and providing midwifery services. The evidence suggests reluctance from midwives to adopting a more holistic approach to intrapartum care that incorporates less invasive ways of assessing intrapartum progress. This may result from working in organisations that influence practice by means of policies, the availability of learning opportunities, in which active management and the procedures associated with it predominate, or a lack of clarity and confidence about how to identify normal labour and provide expectant management.

iii) The Debate on Demarcating Normal Childbirth for Holistic Midwifery Care

Since the 1970's childbirth has become increasingly medicalised (Bates, 1998). This is linked to the provision for almost 100% hospital births and the resulting direct or indirect involvement of obstetricians when most women give birth. Since the 1970's the substantial interest in the perceptions of women about their childbirth experiences has led to a growing concern focussed upon the place of care and birth, the experience of birth and the negative influence of invasive procedures. While health professionals

agree that the main concern is the well-being of mother and baby there are differences in views as to how this can be best achieved. This is particularly relevant in relation to the issue of choice from an expanding range of care options, and the need to consider efficiency and resources of the maternity services (Audit Commission, 1997).

In 1975 a study by the Association for Improvement of Maternity Services (AIMS) found that over 80% of women who had experienced hospital and home birth, prefer to have their babies at home (Prince & Adams, 1978). While this study was conducted 25 years ago it is relevant today, because few women have had experience of home birth since this study was undertaken. The National Childbirth Trust were particularly alarmed by the communication and information problems that women were experiencing in hospital in the 1970's and the divorce between physiological and psychological needs. Prince and Adams (1978) proposed that fear and anxiety are part of the hospital experience and that this has an influence on the efficiency of the uterine contractions. Being immobilised, feeling trapped and being dependant on others to maintain normal body functions are associated with labour wards where mobility is restricted by intravenous infusions, continuous monitoring, draining amniotic fluid following Artificial rupture of membranes, high beds, few chairs, open backed clinical gowns and distances to toilet and washing facilities. In such circumstances women may become inhibited and fearful. In contrast feeling in control, comfortable and independent are associated with relaxation and maternal and fetal well-being. Therefore, creating an environment where women have less to fear, and consider themselves to be in control seems to be important in reducing risk. Creating an environment of partnership between women and carers instead of placing women in positions as the object of observation would seem to be important.

The 1990's were marked by a growing awareness in the midwifery press about the impact of childbirth on women (Bates, 1993; Clements, 1994; Menange, 1996). While the perspective of many women remained unhappy and dissatisfied with the birth experience in the UK, during the 1990's there was a growing dissatisfaction among midwives in particular and health staff in general about the care options provided (DOH, 1993; Gibb, 1996; Whittle, 1994). While most women gave birth in consultant

hospitals, home birth, Domiciliary In and Out (DOMINO), General Practitioner Unit and Midwifery Led Unit deliveries were provided for those who opted out of consultant unit care. These changes were linked to the development of consumer-based care and the requirement to provide choice (DOH, 1993).

The Changing Childbirth Report (DOH, 1993) made recommendations for maternity services. There was specific focus on '*informed choice*' that should be provided in respect of women deciding where to give birth and which health professional would assume the lead in care. In addition clients were to be given information and choice, prior to medical procedures, to which they should consent. Women who wanted a home birth would be cared for entirely by midwives, as would women giving birth in Midwifery Led Units, and emergency cover would be provided by consultant obstetric units. According to Gibb (1996) a Consultant Obstetrician there are obvious benefits of birth at home as well as small but significant risk from abruption, cord prolapse, shoulder dystocia, perinatal asphyxia and postpartum haemorrhage. There was evidence that 'low risk women' booked for a General Practitioner Unit in isolated rural areas had less problems than individuals booked for consultant units. In a study reported by Baird, Jewell & Walker (1996) of 530 women booked for General Practitioner Unit delivery 462 (87%) delivered there. The remaining 13% were transferred to a consultant unit for care in labour. The rate of spontaneous vertex deliveries at the General Practitioner Unit was 94% (433/462). The Caesarean Section rate for women who began labour in the General Practitioner Unit was 3.6% (19/530) and the forceps rate was 5%. The surgical delivery rate of 8.6% compared well with a rate of 16% for total confinements in the region.

The real thrust of the Changing Childbirth Report (DOH, 1993) was to provide an arena for an alternative holistic midwifery service for women who wanted holistic care. Midwives were provided with the opportunity, if not the resources, to assume a role as lead practitioner for women designated as low risk. Moreover, midwives were given the autonomy to make the risk assessment.

A systematic review of the literature was undertaken by Renfrew (1995) in 1992 comparing midwifery verses medical / shared care in terms of pre labour, delivery, and postpartum, and PNM and physical and psychosocial measures of maternal and infant morbidity. Four trials were included (two of low risk women). The results demonstrated that care by midwives is associated with less negative psychological outcomes and equivalent physical outcomes. Renfrew concludes that there may be several advantages to care by midwives. The care is as safe as that provided by doctors and women prefer it. Midwives already provide most of the care within the maternity services of the UK, even in those cases of high risk booked for consultant care. Therefore, midwives assuming a role as lead practitioners for low risk births should require no additional resources. This is dependant upon midwives being given access to existing resources of the maternity services, such as maternity unit facilities for their low risk clients. More flexible care provision than currently provided, such as increased care and delivery in the community would have resource implications.

The Audit Commission (1997) identified that beliefs about pregnancy had consequence for the organisation of the maternity service. That is if pregnancy is only deemed normal in retrospect the services required will be different than if pregnancy is perceived as normal until it proves itself otherwise. The Commission agreed that only a minority of women need to be identified as high-risk to ensure safe delivery of mother and child and agree with the House of Commons Health Committee (Winterton Report, 1992) that pregnancy outcome is reliant on the woman's social environment rather than medical intervention. If a 'different service' that perceives pregnancy as normal until it proves itself otherwise, is to be provided for women who are not high-risk, then there is a need to identify low-risk women. Although it was recognised that *'the majority of women will be cared for by midwives'* and *'each woman should have a named midwife, throughout her labour'* to *'enhance maternal satisfaction'* and *'reduce .. medical interventions'* (Whittle, 1994), it was required that midwives adopt a role as lead practitioners for low-risk women (DOH, 1993). In order to do this effectively agreement on what constituted normal needs to be identified in terms of women's health status and also the type of care and progress evaluation that midwives would

provide. In this respect the Royal College of Midwives in 1997 identified the need to redefine normal childbirth (Bates, 1998).

There was concern that if normal births excluded those labours subject to obstetric procedures (episiotomy, artificial rupture of membranes, Prostin / Syntocinon induction and augmentation, epidural, women with antenatal problems and post delivery problems) then cases that were currently classed as normal and attended by midwives at delivery - that make up 75% of all births - would be less than at present (Plummer, 1996).

Dissent to the view of the Royal College of Midwives was in part due to the importance placed on the role of midwives to provide care for all women during pregnancy, birth and in the babies first month. This was considered important if midwives were to 'be with woman' (Plummer, 1996). It is probable that comparing midwifery in other countries led to these concerns. For example, while in the Netherlands women book with midwives or doctors, in the UK midwives have always made a substantial contribution to the care of all pregnant women. This care was and is valued and there has been no suggestion of reducing this. Indeed obstetric cases consume a great deal of midwifery time. The real issue for midwives is how to identify those women that are low risk in order to lead care; adopting less of the interventions listed by Plummer (1996).

Midwives must be able to clearly identify those women for whom they can assume responsibility during childbirth. They must be able to '*defend the normality of labour*' within the '*culture and constraints of the organisation ...*' (Downe, 2001) in respect of adopting and retaining a role as lead practitioner for a particular case (DOH, 1993). The experience of individual women being cared for by midwives is dependent to an extent upon each midwife's view of birth. While a dichotomy of beliefs between midwives and obstetricians is often accepted, there is evidence that many interventions used within 'normal birth' are carried out by or encouraged by midwives who have adopted the view that birth is normal in retrospect (Downe, 2001). Perhaps there are those who accept intervention as usual and therefore normal when used for women with no problems. If women are to be provided with a service from midwives that does not reflect active management of labour, it is therefore not enough to identify women with no identified or anticipated problems with childbirth, rather what constitutes a normal

labour experience must also be identified. Defining attributes of normal labour have been produced from concept analysis and described by Gould in 2000 (Figure 2.12):

Figure 2.12: Defining attributes of normal labour

1. Physiologically normal labour naturally follows a sequential pattern
 2. The woman experiences painful regular uterine contractions stimulating progressive effacement and dilatation of the cervix and descent of the fetus, culminating in the spontaneous vaginal birth of a health baby and expulsion of placenta and membranes with no apparent complications in mother and baby
 3. It is strenuous work
 4. Movement has a crucial role
-

Within the description the physiology of normal birth is linked with natural sequential processes incorporating uterine contractions, effacement and dilatation of the cervix and descent of the fetus. Normal labour results in a spontaneous birth that is free of complications for mother and baby. The woman experiences labour as hard work in which movement of the fetus is produced from the work of the uterus experienced as regular uterine discomfort. The work of the uterus is assisted and the discomfort of contractions is managed using movement of the body. Physiological normal birth is associated with an ambulant active labouring woman.

Downe (2001) is critical that the attributes focus only on physical processes as women often focus on the psychological transition experienced in labour. Downe argues that an apparently normal birth can leave women with emotional scars, and she presents a more holistic view of normal labour extracted from the 1993 edition of Myles Textbook for Midwives that was edited by Bennett and Brown:

'... the physiological transition from pregnancy to motherhood heralds an enormous change in each woman physically and psychologically ... every system in the body is affected and the experience represents a major rite de passage in the woman's life' (Downe, 2001)

While the above quotation provides a more holistic understanding of birth and conveys the implications and meaning of birth for the woman, it is not specific about how birth is achieved by 'the body' in ways that can be accommodated as guidelines for providing care and monitoring. The criteria produced by Gould (2000) incorporate freedom from complications for mother and baby. This can be interpreted by midwives who are aware

of theories of individuals and groups as freedom from mental trauma, positive memories, empowering experiences in which the importance of birth and the fears about birth are integrated within midwifery care.

How women are cared for must therefore reflect the emotional as well as the physical impact of birth and birth practices. This is expressed in Weston's (2001) view of normal childbirth:

'.. a labour and birth in which a woman is free to 'tap into her inner resources' of strength, and her innate abilities to give birth without interventions such as syntocinon or an epidural. This means keeping intrusive vaginal examinations to a minimum and midwives being able to recognise progress of labour without them. Arbitrary time limits have no place in a spontaneous physiological birth.'

Weston's view of normal childbirth specifically excludes those interventions that typify active management, incorporating minimal use of vaginal examination and a greater reliance on alternative methods to identify progress. This is linked to rejecting time limits, as without time limits 'precise measures' of cervical dilatation are not relevant. The view that alternative methods should be used to estimate progress has gained some support among midwives (Stuart, 2000; Walsh, 2000).

The Audit Commission (1997) recommended that women who were not high risk should be identified and provided with midwifery care and minimal intervention throughout normal labour. The previous discussion is concerned with the nature of normal childbirth, and it is possible that women who have a history of previous obstetric complications or surgery and or medical conditions could also have a normal birth. While midwives may continue to provide most of the midwifery care for such women and will probably assist with the birth it is important that an obstetrician provides a lead for maternity care. This interpretation is based on requirements of Section B, 40 (Practice Rules, Responsibility and sphere of practice) of the Midwives Rules (UKCC, 1998):

'Except in an emergency, a practicing midwife shall not provide any midwifery care, or undertake any treatment ... which is outside her current sphere of practice.' (40:2)

'In an emergency, or where a deviation from the norm which is outside her current sphere of practice becomes apparent in the mother or baby during the antenatal, intranatal or postnatal periods, a practising midwife shall call a registered medical practitioner...' (40:3).

An example of this is found in 'The Birth Centre' where women pay for the private services of midwives. Consultation with obstetricians are accompanied by midwives who care for women in labour wherever the venue (Flint, 2001).

iv) Development of Midwifery Practice Knowledge and Skills in Expectant Management

Awareness of the negative impact of technology and the problems that women experience has led to an examination of the type of care and assessment used for the majority of women. In place of active management of labour, with time limitations, the associated almost inevitable interventions and routine vaginal examination to assess and predict progress, midwives are to provide Expectant Management for 'normal childbirth'. Expectant management is associated with a more positive philosophical belief in which childbirth is seen as a physiological process that can be encouraged to a positive outcome for mother and baby.

The extent to which vaginal examination is used, in theory, should be reduced when expectant management is used. Before the mid 1970's midwives used a number of signs and symptoms to monitor progress in labour and developed expertise in these methods. Stuart (2000) for example, was able to utilise vaginal examination within her practice if necessary, but she had substantial confidence in alternative skills.

The Legacy of Measurement

Although midwives may appreciate the desirability of providing alternative care this may not be easy for them to achieve. Change is required in relation to the development of clinical skills, practice knowledge, a philosophical approach that has confidence in physiological childbirth processes and a re-evaluation of relationships with medical staff and women.

The experiences of consultant unit care and active management of labour of the last forty years has left a residue in the form of a need for midwives to monitor labour in ways that were formerly not expected. The mechanistic scientific approach of obstetrics and the overconfidence in the ability to measure and predict progress accurately, as dilatation of the cervix, is difficult to replace (Stuart, 2000). Policies, case note documents, progress summaries on labour wards and conversations about women in labour, emphasise cervical dilatation over other information available to midwives. Confidence in cervical assessment is not supported by evidence, it is not always reliable (Tuffnell *et al*, 1989) and confidence in the findings can not be justified (Walsh, 2000). This is significant, because vaginal examinations have traumatic associations, linked to discomfort and embarrassment and emotional trauma (Clements, 1994). Vaginal examination is considered to be invasive and it affects clients in negative ways (Stuart, 2000; Walsh, 2000). Walsh (2000) states that:

'...routine repeated vaginal examinations in normal labour should be abandoned until research establishes their appropriate place.'

Expectant management does not mean that midwives are unable to undertake vaginal examination, rather it means that they should be able to justify a reason for performing one, and that they should not undertake unnecessary or routine examinations. Instead they should rely on other less invasive forms of assessment to a greater extent. Towler and Butler (1980) provide guidance for student midwives on when it may be necessary to perform a vaginal examination in labour:

'Vaginal Examination in Labour

It may be necessary to examine the patient *per vaginam*, in the following circumstances:

1. To determine or to confirm the presenting part in cases of doubt;
2. To determine the position of the head;
3. To determine the station of the presenting part in the pelvis;
4. To assess the state of the membranes; whether they have ruptured, and or if they have not, whether they are tense and bulging, or flaccid;
5. To assess the progress of labour;
 - (i) By the degree of dilatation of the cervix;
 - (ii) By the amount of descent of the presenting part;
 - (iii) By the amount of rotation;
6. Where there is apparent delay in labour;
7. To decide, in cases of difficulty, whether the cervix is fully dilated or not;
8. Before the midwife in domiciliary practice leaves her patient.'

(Towler & Butler, 1980, pp 321-322)

This list of indications is comprehensive and is broad enough to accommodate a philosophy of active or expectant management. In contrast the reason for performing a vaginal examination provided in Myles Textbook for Midwives (1975) places the examination in a context with other methods of assessment used by the midwife:

'A vaginal examination should always be preceded by an abdominal examination. The presentation, position and descent of the fetus can be ascertained by abdominal palpation during the first stage of labour, but there are occasions when it is imperative that a vaginal examination be made. It is the only certain method of determining the degree of dilatation of the cervix, which is one of the criteria by which progress during labour is assessed.'

(Miles, 1975, pp 246-247)

This quotation provides a more holistic view of assessment and how vaginal examination can be accommodated within clinical assessment involving a range of information on progress.

Exploring Alternative Assessment for Expectant Management

A desire to provide expectant management has led midwives to examine approaches to monitoring intrapartum progress that do not require routine vaginal assessment (Byrne & Edmonds, 1990; Hobbs, 1998). The quality of contractions (length, strength and frequency) and descent of the fetal head through the pelvis can be palpated via the abdominal wall (Kitzinger, 1997) and the level at which the fetal heart is heard best using a Pinard stethoscope will descend with the fetus. Such methods already have a role in a scientific and objective approach to monitoring labour progress, but they have less status as objective criteria and could be given greater emphasis in place of routine vaginal examinations. Other alternatives to estimating progress using an indirect estimate of cervical dilatation have been proposed in the literature. Byrne and Edmonds (1990) and Hobbs (1998) have described a line of red / purple discoloration in the natal cleft, that begins at the anal margin and extends upwards between the buttocks as labour progresses.

An association between the length of the line and cervical dilatation has been demonstrated in 91 out of 102 observations on 48 women in spontaneous labour (Byrne &

Edmonds, 1990). Clinical observation indicates that the line one-quarter up the natal cleft reflects 4 cm, three-quarters reflects 7 cm and at the nape of the buttocks, just below the sacro-coccygeal joint reflects full dilatation (Hobbs, 1998). The line is considered to be due to vasocongestion (Last, 1984) at the base of the sacrum resulting from increasing intra-pelvic pressure as the fetal head descends. A significant correlation between station of the head and the length of the line is explained indirectly by its dependence on station of the head (Byrne & Edmonds, 1990). The importance of the level of the presenting part is significant in labour progress. Only in rare circumstances is descent not associated with cervical dilatation, but it is not unusual for dilatation and lack of descent.

Methods that do not rely on carrying out an assessment involve observation of *'the semblance and behaviour of women'* which *'appear to change in response to their labour'* which *'some midwives use'* to assess progress in labour (Duff, 2002). It is possible for midwives to observe such behaviour, as in contrast with obstetricians, they spend a great deal of time with women in labour. Duff explains that behaviours are different during each stage of labour, and she provides examples of the behaviours from published text (Figure 2.13).

Figure 2.13: Maternal Behaviours according to Stages of Labour (Duff, 2002)

First Stage	Early labour	'chatty' 'many women seem quite normal'
	Established labour cervix 4 cm	'women inwardly focussed' 'sleep is impossible ... the woman's eyes become dilated and she becomes sensitive to the movement of other people'
	Phase of transition	'women may shiver or vomit and often want to give up' 'restlessness, complaining, a shift in focus, a loss of control' 'many women show a complete change in their mental state' 'they become demanding, abusive or want to go home'

Duff (2002) used midwifery text (51) and medical text (21) to scan for behaviours, which she grouped into four phases of labour. In the midwifery text there were 830 descriptions representing early labour (152), active labour (200), transition (336) and second stage (134). Medical text revealed only 8 behaviours for the stages of transition (1) and second stage (7).

Many changes observed by midwives are present as verbal changes and non-verbal sounds. McKay and Roberts (1990) conducted a study in the USA of second stage sounds and caregiver response. Second stage labours were videotaped to study caregiver behaviour during the second stage and interviews with mothers and nurse-midwives were conducted as they viewed the videos. From the data maternal noises were classified according to state, typical sounds, significance and caregiver response (Figure 2.14).

Figure 2.14: Classification of Maternal Noises During Second Stage Labour and Significance for Caregivers (McKay & Roberts, 1980)

State	Typical Sounds	Significance	Caregiver Response
1. Work/effort: adaptive/effective	Guttural; grunt, "uhhh"; primal / animalistic; (low pitch)	Expression of effort / pressure; efficient use of abdominals; "I'm pushing."	Responsive to maternal efforts (non-interference and validation with the labouring woman that her sounds are related to the work she is doing).
2. Coping: adaptive/self comforting /soothing	Sigh ("oh ..."); moan; groan; (low pitch)	Expression of tension relief / release; "I'm coping."	Responsive to maternal efforts (non-interference and reassurance of the woman that her sounds assist with tension relief).
3. Childlike: emotions predominate /nonadaptive	Cry (like a baby); whimper; whine (like a puppy); "owie"; (high pitch)	Pain / distress; "it hurts"; "I'm scared"; "I'm going to lose control."	Becomes active to avert more pronounced distress (reassurance and direction about coping strategies).
4. Out-of-control: emotions predominate /nonadaptive	"EYEE"; holler; yell; noisy, overbreathing; (very high pitch)	Extreme pain / distress / pain; "I can't do this"; "I've lost hope."	Very active in directing behaviour (i.e. type of breathing, bearing down efforts, or bodily activity)
5. Epidural analgesia: body/mind split	Quiet / normal conversation	Expressions from woman do not provide data about physiologic state; "I don't know what is happening."	Variable, from no activity to highly directive; may miss cues because of incongruent maternal physiologic / psychologic states.

The study demonstrated that nurse-midwives made use of the sounds to understand how the woman was coping. Sound was viewed as having a purpose to help the woman with the work and effort of contractions and to provide comfort for herself between contractions. When women produced childlike noise caregivers often intervened, as the woman was perceived as beginning to lose control and confidence. They attempted to bring them into focus by breathing with them and making eye contact. Out of control

noises produced a stronger physical reaction from carers in which one responded by *'grabbing hold of the woman's face, looking right in her eyes and saying, "listen to me. I want you to breathe, I don't want you to lose it."* How each noise was interpreted was distinguished by the stage of birth. Screaming, for example, was viewed as a sign of being out of control, especially if accompanied by writhing. However the exception was the birth cry/scream, that was differentiated from other screaming because of the timing of its occurrence and because the quality is probably similar to the sounds of orgasm (McKay & Roberts, 1990).

McKay and Roberts (1990) study has demonstrated how midwives can use maternal noise to understand how the mother is coping with and progressing with the second stage of labour. A study by Baker and Kenner (1993) investigated the use of maternal sound as a potential unobtrusive aid to monitoring labour progress. Tape recordings of vocalisations (one minute) in childbirth were played to 40 health care staff (38 midwives and 2 medical officers) who were asked to associate vocalisations with first or second stages of labour. All of the vocalisations were correctly assigned to the appropriate stages of labour with a greater than chance level. Before listening to the tapes 34 of the sample believed there were differences in the characteristics of vocalisations of first and second stages of labour, three disagreed and three were undecided. A spectrographic analysis of the labour vocalisations was compared with normal speech from the same women and identified greater frequency, increased intensity, elongation of the vocalisation and a change of contour shape of the frequency.

Expectant Management requires midwives to avoid routine vaginal examination and rely on alternative ways of assessing progress. Vaginal examination remains an important diagnostic approach when used selectively but the previous section has discussed some of the alternatives that can be used in combination when caring for intrapartum women. Interestingly it appears that practitioners have insight into maternal behaviour that they are not currently fully aware of, although signs may be incorporated into an overall assessment while not being acknowledged or reported. Information on such maternal behaviours may provide a valuable resource for midwives adopting expectant management and holistic care. Also important in understanding the transition to

adopting expectant management and holistic care is an appreciation of the factors influencing the development of capability as a result of undertaking work associated with labour progress assessment.

v) Understanding the Development of Midwifery Practice Knowledge and Skills from 'Doing the Job'.

Midwives use a variety of indicators to assess progress in situations where 'normal' labour is demonstrated and spontaneous vaginal birth anticipated. While midwives and obstetricians have available to them the same range of diagnostic procedures to evaluate intrapartum progress, how they use them may be a reflection of 'case' responsibility, prior learning and boundaries of practice. It is probable that each group influences the practice and learning of the other. Understanding how midwives learn about intrapartum assessment will facilitate effective organisation of resources and improve learning strategies to enhance midwifery skills in assessment methods compatible with expectant management.

Developing decision making skills

How midwives develop decision-making skills is partly explained by theories of problem solving that have been applied to health care practice (Taylor, 2000). Decision theory focuses on the decision to be made, such as judgement when the patient state is unknown and must be inferred from cues (signs and symptoms) or in relation to decision making in situations of risk. Information processing theory examines the interaction between information processing systems (the problem solver) and a task environment.

Taylor's (2000) discussion of various studies highlights:

- *'Selective attention to information.*
- *Hypotheses formulation and strategy selection.*
- *Acknowledging cues as a basis for clinical action.*
- *Judgements of nurses are comparable to quantitatively derived preferred action.*
- *The complexity of nursing options, which are infrequently 'either-or', but often combined, and rarely stable or concluded.*
- *The limits of human information processing capacity in problem solving and individual ability to adapt to limitations.'*

Clinical decision-making involves inductive reasoning (arising from the generation of a working hypothesis). According to Taylor (2000) there are indications that problem-solving in clinical practice has four stages of activity: (i) activation of hypothesis early in encounter, (ii) data collection, (iii) asking general questions to seek out information leads and (iv) probing for more specific information.

Developing practice knowledge

Much of clinical midwifery knowledge is related to caring and refined over time, it informs decision-making. Decisions about assessment form the basis of intrapartum care and midwives must learn to use the decision skills they have developed, and provide appropriate care (Cioffi, 1998). Given the previous discussion, it seems probable that the process will take the form presented in Figure 2.15.

How midwives learn to make decisions cannot simply be explained by understanding decision-making skills. Understanding how knowledge is learned and used is important in developing strategies to enhance learning in clinical practice. There are studies that examine professional learning (Eraut *et al*, 1997; Eraut, 1994; Rolfe, 1997; Price & Price, 1993; Walker & Sibson, 1998; Radwin, 1998) and health care professionals learning at work (Eraut *et al*, 1997).

Figure 2.15: Proposed Decision Making Process for Midwives Intrapartum Progress Assessment.

1. Form a working hypothesis about intrapartum status and care needs.
2. Decide what information to collect to test this working hypothesis.
3. Collect general information and on the basis of results (general physiological signs and symptoms such as posture, mobility etc.).
4. Develop leads about what to investigate further.
5. Collect more specific information (physiological indicators such as frequency, strength and duration of contractions, level of head, dilatation of cervix etc.).
6. Evaluate the information in view of:
 - Previous measures of progress
 - Client condition
 - Fetal condition
 - Social and organisational factors
7. Confirm or refute the working hypothesis:
 - Decide further information collection
 - Consider care management options

Clinical expertise is derived from both experience and formal education (Eraut 1994). It is likely that 'knowledge by acquaintance' (first hand experience) is important in effective intrapartum monitoring (Rolfe, 1997). Assessing intrapartum progress, is concerned with high levels of indeterminate knowledge, which is generally less assessable than technical knowledge and linked with experience (Walker and Sibson, 1998). Experience is associated with the development of three decision-making attributes: i) patient centred focus, ii) confidence, and knowledge of antecedents and iii) consequences of specific patient situations (Radwin, 1998). The latter includes recognition of patterns and trajectories, which seems applicable to recognising progress in labour.

Studies in problem solving provide insight into the intuitive processes involved in clinical decisions, and the heuristics applied to the process (Cioffi & Markham, 1997). The complexities of assessing intrapartum progress or how midwives develop specific skills and knowledge are not addressed. How practice knowledge and skills are used is determined by the action context. In the, what ought to be done environment of practice, knowledge reflects pragmatism, experience and individuality, and is used in idiosyncratic ways, relying on implicit theory (Eraut, 1994). When the action context reflects 'hot action', where there is a lot of information to process and quick responses are required, habits and routines may be used to cope (Eraut, 1994) and short cuts based on experience may be used to arrive at reasonably accurate decisions (Cioffi & Markham, 1997).

What is particular about how health care practitioners engage in decision making is that the 'imperative of practice', i.e. to provide necessary care in many cases precedes the resolution of the decision making process. In certain cases the need to care may result in short cuts within the process and the care itself may get in the way of the decision process. For example, midwives may be distracted by pressures such as extreme pain reports from intrapartum women, social pressures from client's partners and family for information and reassurance and organisational factors such as competing care needs of other women. If midwives have to shortcut the decision making process, for example,

from working hypothesis to collecting specific information this may influence the woman's experience of care. This is especially the case if a midwife resorts to performing a vaginal examination. Short cuts in the decision making process are an alternative to suspending the later stages of the decision making process, for example by making the woman comfortable, providing distraction, ensuring the maternal and fetal condition are good, and resuming the process when time permits. The latter fulfils the imperative to care and attend to competing priorities, while not short cutting the decision making process. However, midwives may have expectations placed upon them that they should finish the job. Solutions adopted for such dilemmas will reflect the individual midwife.

The present study is linked to evidence based practice (EBP) which according to Sackett *et al* (1996, p71-72): *'... is the conscientious, expedient and judicious use of available best evidence in making decisions about the care of individual patients.'* Evidence based practice is comprised of individual clinical expertise -proficiency and judgement from experience and practice - and the best available evidence from research. Within the model of evidence based practice expertise decides on the relevance of evidence to the particular client situation, and how it should be integrated into a clinical decision. This model of evidence based practice addresses the complexity of clinical practice and the importance of expertise over research in determining clinical decision-making (Sackett *et al*, 1996). It also accommodates individuality that midwives express within their practice when making clinical decisions. When directed at the complex needs of clients, this midwifery knowledge informs practice and may also be associated with perpetuation of tradition and ritual (Reed & Procter, 1993) that is inextricably bound up with the decision making process and 'safe care'. How midwives interpret progress may incorporate physiological considerations, time constraints or past experiences of labouring women. Theories of clinical decision-making will contribute to understanding of this process (Baker, 1997; Cioffi & Markham, 1997).

According to Wenger (1998) the way that individuals work is influenced by their engagement in 'communities of practice'. Such communities provide the structure and opportunities for individuals to engage in participation. Midwifery practice can be

determined to be site of participation for midwifery as a 'community of practice', and the methods that midwives use to assess intrapartum progress take place on a boundary with medical practice. According to Wenger (1998) reification is about '*creating points of focus around which the negotiation of meaning becomes organised*' (p58); in the context of assessing progress it can be seen as '*a way of interpreting*' a client state. Ambiguity permits reification to accommodate different viewpoints, misunderstanding and failure to detect incompatible assumptions. Audits of practice, clinical guidelines and policies to an extent attempt to avoid ambiguity in the short term, by dictating the site of decision making by midwives. It is possible that prioritisation of particular information, that is seen as objective or more scientific, concerning intrapartum progress can be identified as a denial of negotiability about what progress means to midwifery and possibly women.

Building knowledge around assessment of progress in labour will provide information, which can be used by midwives to evaluate the evidence base of their practice and the influence of the community of practice to which they belong. It is also of relevance to curriculum development as adequate preparation for a role in midwifery has been linked with curriculum structure and appropriateness and support in practice settings. Student midwives are not all equipped to deal competently and confidently in contexts of uncertainty and change (Fraser, 2000).

The literature provides examples of research into professional learning (Altrichter *et al*, 1993; Baker, 1997; Eraut, 1994; Eraut *et al*, 1998; Fraser, 2000), particular aspects of midwifery practice knowledge relevant to intrapartum care (Baker & Kenner, 1993; Byrne & Edmonds, 1990; Cioffe, 1998; Cioffe & Markham, 1997; Duff, 2002) and frequency of and reasons for carrying out vaginal examination and other assessment (Mead, 2003; Sookhoo & Biott, 2002; Sinclair, 1999; Stuart, 2000; Walsh, 2000). What is not available in the literature is research on the breadth of information that midwives make use of within intrapartum assessment and how they weigh such information when making clinical decisions.

An explanation of how midwives learn to carry out intrapartum assessment, and the factors that influence the development of similar and different strategies for assessment among midwives is also absent from the literature. A study by Eraut *et al* (1998) that included a range of professional groups, looked at professional learning in the workplace. Eraut *et al* developed a model of professional learning (Figure 2.16) to represent learning in employment.

The study by Eraut *et al* (1998) does not define a specific focus of learning, bounded by clinical practice issues that demarcate breadth and type of work and learning, but it does contribute to understanding how midwives learn to undertake activities associated with their role. In order to understand why midwives appear to rely on vaginal examination when diagnosing intrapartum progress, rather than giving emphasis to the extensive range of alternative, less invasive measures available to them, it is necessary to understand how midwives prioritise.

Figure 2.16: Development of Knowledge and skills in Employment (Eraut *et al*, 1998)

WHAT IS BEING LEARNED	HOW IS IT BEING LEARNED	FACTORS AFFECTING LEARNING
<ul style="list-style-type: none">• Understanding of: situations, colleagues and work unit, own organisation, self and strategy.• Skills: technical, learning, interpersonal and thinking.• Propositional knowledge• Knowledge resources and how to access them.• Judgement.	<ul style="list-style-type: none">• Working for qualifications• Short courses• Special events• Materials• Organised learning support• Consultation and collaboration within the working group• The challenge of the work itself• Consultation outside the working group• Life outside work	<p>Personal Characteristics:</p> <ul style="list-style-type: none">• Confidence• Motivation• Capability / Prior knowledge <p>The Micro Context:</p> <ul style="list-style-type: none">• How a person is managed• The microculture of the workplace <p>The Macro Context:</p> <ul style="list-style-type: none">• The organisation• Professional bodies

It is often assumed that involvement of medical staff in birth has resulted in active management of labour and that midwives would provide different care for 'normal cases'. However, there is little evidence that midwives are prioritising expectant management of labour over active management, or that they are resorting to less intrusive assessment for 'normal cases'. Explanations for this include directive unit

policies and a dominant medical model of care. There are other possibilities, such as attempts of service co-ordinators to monitor progress at a distance using objective measures obtained by individual midwives. However, the development of knowledge and skills in employment is also relevant. It is likely that midwives in employment learn to recognise priorities, constraints and prejudices that impose upon their role. In assessing intrapartum progress midwives will learn to appreciate what skills and knowledge are credible within the organisation to be documented and 'talked about'. This is a potentially uncomfortable issue for midwives but is of interest to health care researchers and midwives.

While an important focus of this study is to capture midwives practice knowledge in relation to assessing intrapartum progress, it is also important to understand how this is developed in practice. Understanding how learning develops and the factors that influence it may illuminate the type of experiences that encourage the development of a range of less intrusive skills in intrapartum assessment, and identify those factors that encourage wider use of such skills by midwives.

The model developed by Eraut *et al* (1998) provides a structure to examine midwives learning about intrapartum progress. Recommendations from Eraut *et al* (1998) for in depth studies to refine the model of professional learning in the workplace indicates that this study can provide a distinctive contribution to models of clinical professionals learning at work.

Summary

Evaluating literature on the historical developments in maternity care has demonstrated that concern for maternal and perinatal mortality rates acted as a catalyst for regulating the training and practice of midwives and implementing training for medical staff in obstetrics. Improving national mortality statistics due to improved social conditions, were wrongly attributed to medical intervention, while negative consequences of obstetric care was mostly rejected until the 1980's. Hospitalisation gained increasing momentum; there was gradual domination of childbirth by obstetrics

and the development of a dominant view of birth as dangerous. This view was associated with active management of labour and accelerated birth in which hospital midwives increasingly participated as community birth reduced.

In the 1980's there was pressure from consumers, increasing realisation of the failure of obstetrics to make childbirth safer, and growing awareness of the hazards of active management and negative childbirth experience for women. This resulted in the movement for midwives to provide intervention free birth that was supported by government reports on childbirth. Midwives began to examine classification of 'normality' and develop alternative ways of conceptualising the uncertainty of childbirth. This required alternative approaches to intrapartum care that required skills in expectant management, increased collaboration with women and greater autonomy from medical staff. The evidence suggests that midwives may not all possess the skills and confidence required to undertake expectant management, because of the way midwifery practice knowledge develops from 'doing the job' and the unavailability of experience of this type of management in most hospital practice. In the development of intrapartum assessment skills by clinical midwives, individual practice knowledge, local policies and systems of collaboration with other midwives, women and medical staff are likely to be important.

The work of Eraut *et al* (1997) and Wenger (1998) can contribute to the development of a framework for this thesis. Eraut *et al* provide a model to describe the development of contemporary midwifery practice knowledge that can be adapted as a framework for depicting midwives learning around intrapartum progress assessment. While the model created by Eraut *et al* makes it possible to identify that the organisation in which midwives work influences learning, Wenger provides a perspective on the interrelatedness of the individual and organisation in participation. Wenger's contribution to a framework for this thesis is the recognition of reciprocity that is likely to exist between individual midwives and others in the 'community of practice', in which opportunities to engage are presented and negotiability about meaning is organised.

CHAPTER 3: RESEARCH METHODOLOGY

This research is attempting to address questions about midwifery practice. As a midwife undertaking this study I wish to investigate the 'real world' of midwifery practice and that involves 'seeking to say something sensible about a complex, relatively poorly controlled and generally 'messy' situation' (Robson 1993, 3). To contribute to midwifery practice the research must have practical relevance to midwives and other stakeholders in the maternity services. Therefore it was important to select a research design, methods of data collection and methods of analysis and presentation for this study that are helpful in answering the research questions. In order to achieve this the study focused on the practical importance of the research results. For which qualitative methods are appropriate because of the detail that they are capable of generating within the results (Robson, 1993; Strauss & Corbin, 1990; Woods, 1999).

The nature of the research question lends itself to qualitative research, as it is possible for an individual researcher to uncover individual experience concerned with human behaviour and functioning in a natural setting, in this case midwives assessing intrapartum progress. Qualitative research provides the means to uncover and understand what lies behind the phenomena in terms of individuals, groups and organisations (Strauss & Corbin, 1990). In this case how individual attributes, experience and learning, and clinical and organisational context influence how midwives carry out intrapartum assessment.

The components of qualitative research are the data, the analytical or interpretive procedures and the reports. Qualitative researchers do not collect data that are quantified and the methods of data collection normally used include observation, interview, documents and reports. Analysis of data in qualitative research does not employ inferential statistics to arrive at findings although descriptive statistics may be used. Instead theory is generated using non-mathematical analytical procedures. There are different perspectives about the amount of interpretation applied to qualitative data such as reporting unprocessed data, accurate description of key data or reducing data and building theory (Strauss & Corbin, 1990). This study is concerned

with theory building and the developments of concepts that interpret reality (Woods, 1999). This reflects the requirements of a programme of research leading to a PhD and also the requirement to provide a framework for action by employing a systematic research process to build, synthesise and integrate knowledge that will in turn contribute to midwifery practice development.

The type of theory generated by this research is concerned with clinical midwifery practice. Such theory does not aspire to representing social systems as a grand theory but instead it reflects the day-to-day behaviour of individuals. Grounded theory is theory that is grounded in the data, in that it is inductively derived from a study, which, begins with an interest, from which an area that is relevant is allowed to emerge. The theory is discovered, developed and verified through data collection and analysis. This approach to developing substantive theory is adopted in this study (Strauss & Corbin, 1990).

Skills required for undertaking qualitative research must be directed at collecting valid and reliable data, recognising and avoiding bias, thinking abstractly and critical analysis. According to Strauss and Corbin (1990, p18) 'A qualitative researcher requires theoretical and social sensitivity, the ability to maintain analytical distance while at the same time drawing upon past experience and theoretical knowledge to interpret what is seen, astute powers of observation, and good interaction skills.' These skills have already developed to an extent as a result of work as a health professional and educator. They will be developed further during the research process as a result of experience gained undertaking the research and because of contributions from respondents and members of the supervisory team in the form of questions and critical feedback.

i) The Relationship Between Data and Theory

Qualitative researchers seek to generate theory from the data. This means that the theory is grounded in the social activity it is attempting to explain. At the same time

assumptions and wider literature are systematically identified and integrated within the research process (Layder, 1998). However, it is important to recognise that there is a broad range of beliefs and views about what type of qualitative research should be carried out. In particular there is a focus on methodological practice by many sociologists attempting to establish rigour and dominant models of practice in qualitative research. These attempts have met with limited success. However, such commentary requires a response in order to describe clearly where this research sits in terms of methodology.

Within qualitative research a subject of contention seems to be whether prior theory or data should give shape to the research. Alternatively, previously generated theory from a 'grand' or 'general theory' can be used as part of a middle-range approach to formulate a theoretical hypothesis in advance of the research, guide the process and give shape to any theorising once the data has been collected. However, research can commence with as little pre-formulated theory as possible as theory is generated during the research. While both approaches can give rise to middle-range theory the second develops theory that is substantively grounded in the data (Layder, 1998).

In undertaking this research, the importance of representing the perspective of the participants was central. For this reason developing grounded theory was attractive because of the links to interpretivism or humanist traditions, where society is not thought to model itself on the natural sciences. This places participants in a more central role within research than just that of subject. As the theory is grounded in the data an additional advantage is that it is anticipated that midwives will identify with the emerging theories that represent their perspective on midwifery practice. The alternative middle-range approach appeared less appropriate for two main reasons. The first is that there appeared to be very little theory developed on the progress assessment methods that midwives use, how they integrated these methods in practice and the factors that influenced their practice when providing intrapartum assessment of progress as part of labour care. The second was that if the results of the research are to have an impact on the practice theory that is developed they must arise from a

practice perspective. For these reasons the development of grounded theory was favoured for this study.

While a grounded theory approach has advantages within this study, there are problems with the relationship between theory and process related to the prior experiences and expectations of the researcher. The researcher is a midwife with knowledge of theories that bear upon the research problem. The researcher is also a PhD student who is required to undertake a comprehensive review of the literature prior to undertaking research in order to justify the project, gain ethical approval and in this case submit bids to external funding bodies. This presents problems in adopting a grounded theory approach as prior theories can influence data collection. However, Layder (1998) believes that all forms of data collection are influenced by prior theoretical assumptions in some way and that systematic identification of such assumptions, and attempts at integrating them into the research process can facilitate production of more adequate explanations for data. What Layder (1998) refers to as 'the adaptive theory approach' is connected to the wider literature in a way that is systematic, disciplined and more inclusive of procedural diversity in theory generation. The approach to analysis adopted in this project seems to fit with what is termed 'the adaptive theory approach' (Layder, 1998). The Project Model (Figure 6.1) was developed as a result of modification and adaptation of earlier models (Appendix 1) that were based upon data from preliminary interviews and a framework (Development of Knowledge and Skills in Employment) developed by Eraut *et al* (1998) and transposed into this research. This framework is summarised in Figure 2.16. Modification to earlier models has resulted from a process of continual testing and reframing that has led to the final project model (Figure 6.1). Testing and developing the model has provided a focus for analysis and theoretical sampling.

While this research is concerned with midwives' learning and working, and the focus is assessment of labour progress, the orientation is towards learning and working with low risk cases and developing skills and knowledge of expectant management. Factors that influence this development and limit it are also an area of investigation.

ii) Discussion of Data Collection Methods

An emergent research design was adopted for this study as the adaptability and responsiveness of this design lends itself to a changing course of action in order to pursue leads or contradictions in the data with a developing understanding of the field. While a schedule of research activity was prepared for the purpose of addressing logistics and convincing PhD supervisors and reviewers and the review process of the Health Foundation (who provided me with a Mid Career award) of the potential of a particular strategy, this strategy was of necessity revisited during the research process. An emergent research design is useful as it can provide rich data for qualitative analysis and selection of methods is also important in this regard.

There is support for using multiple methods of investigation in qualitative research to overcome the shortcomings of a single method (Robson, 1993; Denzin & Lincoln, 1994; Brewer & Hunter, 1989). Multiple methods revolve around the theoretical concept of 'triangulation' to overcome inherent weakness of a single method (Denzin & Lincoln, 1994) that is limited in its power to fully answer a research question (Brewer & Hunter, 1989). With multiple methods the results from one method can be used to corroborate or contradict the results of another (Robson, 1993). Triangulation is not therefore a strategy for validation rather it is an alternative to validation, where a strategy of combining multiple methods, empirical materials, perspectives and observers in a study adds rigor, breadth and depth to an investigation (Denzin & Lincoln, 1994). In particular multiple methods may provide a means to learn about the ways that contextual factors influence midwives' working and learning in relation to progress assessment. These are some of the reasons for using multiple methods of data collection within this study. Methods adopted for this study are individual interviews, a field study phase consisting of a period of emersion in the field with data collection from observation and prospective and secondary data from notes and labour records, and qualitative questionnaires.

Each of the methods used in the study has strengths and weaknesses, particularly in relation to investigating an area of midwifery practice. Investigating midwifery

practice from an assumption of reflective rationality requires an investigation of the relationship between professional knowledge and professional action (Altrichter, Posch & Somekh, 1993), while acknowledging various different relationships between knowledge and action (Schon, 1983). Types of action knowledge are comprised of 'tacit knowing in action', 'reflection-in-action' and 'reflection-on-action' and they have relevance to selection of methods and interpretation of results. While recognising that results from a different method can possibly corroborate or contradict the results from a particular method, theories of reflexivity may in some cases also account for differences in results.

iii) Considering the Relative Value of Individual Data Collection Methods

While methods of data collection can be adopted for use within a variety of different types of research project there are particular reasons for adopting interview, field study (observation and labour records) and questionnaires for this study. These reasons are explored within the following section in relation to each method.

Observation

According to Strong (1979) observation is 'a systematic recording of behaviour' (p226) and in studying social rules there are advantages over interview. This study is concerned with rules that influence midwives practice around intrapartum progress assessment, and observation is therefore a useful approach. In particular this approach was considered essential for this study in order to gain insight into 'tacit knowing-in-action' where thinking and acting are not separate, the professional is often unaware of the source of practical knowledge and a verbal description of this practical knowledge may not be provided in a verbal account (Altrichter *et al*, 1993). According to Eraut (1994) habits and routines are used to cope when there is a lot of information to process, and while clinical decisions are reasonably accurate (Cioffi and Markham 1997), practitioners may not be aware of how they make decisions. Given the reduced

awareness of participants concerning thinking and acting in practice and the focus on learning while undertaking the job of labour progress assessment, this means that it is essential to use observation.

There are however limitations associated with observation. Detecting the particular significance of actions being observed in a specific context is a particular problem. This raises the issue of the researcher having status as an insider by virtue of professional background. On the one hand this may help with determining the significance of actions and on the other hand it may lead to misconceptions by taking for granted a shared insight. Hammersley and Atkinson (1995) identify the problem of 'going native' as a result of the joy of participation. It was a positive experience for me as a participant observer, researching an aspect of practice that had been an important aspect of my role when in clinical practice. I did find it disconcerting how quickly I appeared to be accepted by midwives and clients and how I had to resist attempts to involve me in clinical care. It was clear that I was being judged for my participation as one G grade midwife commented that I made a good labour ward team midwife. I found it useful to participate as it gave me access to situations and conversations I would otherwise not have observed, and one staff midwife commented to a client 'She misses nothing!' so it is clear that midwives did understand my primary role. The issue as a researcher is that I was not deviated from data collection or analysis or that analysis was biased from 'over rapport' (Hammersley and Atkinson, 1995). That the observation sessions were inter-dispersed with periods of analysis and interviews was helpful in avoiding this affect, as each period of observation was spent with a different group of labour ward staff. Additional problems with observation are related to the high labour intensiveness of the method, problems with recording data, the influence of the observer and in the case of this study, the possibility of causing embarrassment to pregnant women because observation takes place in a private world, not generally accessible except to those on intimate terms with women in childbirth and health care professionals. For this reason while observation was important to the study it was not used excessively or without justification.

Prospective and Secondary Data from Labour Records

Data from labour records provides the ability to generalise and to verify findings obtained from observation and interview. In addition they provide a written record of labour diagnostics that provides information about what records are required by the organisation. It can be argued that if diagnosing is part of a process of 'tacit knowing-in-action' records made during the diagnosis also reflect action. This is because records may be made at 'the bedside' where the midwife is diagnosing and caring for woman and birth partners at the same time. On the other hand decisions based on diagnosis may be written up away from 'the bedside' and in this situation, where midwives are justifying decisions they have made they may be 'reflecting-in-action' at the labour ward station. According to Altrichter *et al* (1993) this mode is apparent if practitioners find themselves in complex situations that can not be coped with by routine, and while record keeping is part of routine professional practice, justifying decisions in writing may not be treated in such a routine way if the action has been slowed down by distance from the client.

Interview

Interviews elicit understanding, learning episodes, memorable events, examples of past cases, understanding about the reasons for particular practice and changes in practice that require adaptation. Interviews provide a way to sample midwives' reflection-on-action, that develops 'when it is necessary to formulate knowledge explicitly and verbally, to distance ourselves from action for some time and to reflect on it' (Altrichter *et al*, 1993 p206). Reflecting slows action down and disturbs routines, but on the other hand it facilitates careful analysis and planning changes, and also makes knowledge communicable. For these reasons interview is important for this study, which has a focus on midwives' perspective, knowledge and learning. According to Strong (1979 p 227) 'Interview data ... contain a strong bias against the routine and the non-eventful', not surprising as the routine and non-eventful reflect tacit knowing-in-action. As a result of this a problem with interviewing is that individuals often fail to notice what they do in practice, unless they are things of major and immediate concern to them. An additional problem is that interviews can lead to misinformation as

respondents can say what they think the interviewer wants to hear, or repeat beliefs rather than practice. For example, in studies of doctor patient relationship, where interview is used exclusively as the method of collecting data, the research has become a study of attitudes, with no necessary relationship between what patients say they do, and what they actually do. To an extent this effect depends upon what questions are asked, who is asking them and the 'general sense of occasion' (Strong, 1979, p 226).

Questionnaires

Questionnaires have a positive role in qualitative studies as they contribute to fieldwork. According to Sieber (1973) surveys contribute to data collection in fieldwork in two ways:

'(1) they correct for the elite bias in the interpretation of events, and (2) they provide information about the informants or subjects who were overlooked.'

Sieber (1973) argues that surveys can also contribute to the understanding of field observation and in this way contribute to analysis of qualitative field material. He identifies four contributions:

'(1) correction of holistic fallacy, (2) demonstration of the generality of a single observation, (3) verification of field interpretations, and (4) the casting of new light on field observations.'

An additional advantage of questionnaires in this project was provided by asking respondents to engage in diagnostic activity based upon vignettes of labour cases. While responses provided data of knowledge based upon 'reflection-on-action' for vignettes and responses to other sections of the questionnaire, responses to vignettes may also represent knowledge based on 'reflection-in-action'. As this was a paper exercise perhaps this made it a complex situation for midwives that could not be coped with by routine responses.

iv) Designing the Structure of the Research Study

Sieber (1973) argues that the scheduling of fieldwork and qualitative questionnaires is important as if fieldwork is to influence the theoretical structure of the questionnaire it should be undertaken first. However, if fieldwork is to clarify or extend findings from the questionnaire, then it should be carried out after the questionnaire. This was recognised in the design of this project as fieldwork was carried out within a case study prior to developing a questionnaire for distribution within the case study and to participants outside it. Interviews and field study were carried out after questionnaires were distributed but this was not to follow leads from the questionnaires that had not been analysed, it was a continuation of the process of following leads from interviews and field study.

Case Study

Using a range of methods overcomes limitations linked to a single data collection strategy within qualitative research as it enables access to participant's interpretation of prior events and observation of current practice. According to Robson case study is a 'strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within a real life context using multiple sources of evidence' (1993, p146) from individuals and groups. The design of a case study, elements of which often emerge and develop during the study, is comprised of a conceptual framework, a set of research questions, a sampling strategy and a decision on research methods and instruments for data collection.

A case study design was adopted in order to develop detailed, intensive knowledge and permit the flexibility to focus on current and past events of relevance to the project (Robson, 1993). The methods reflect the aims of the study and the emergent research design, in that they were selected to provide rich data for qualitative analysis. The ability to use multiple methods within a case study provided the potential to gain access to all types of action knowledge with relevance to labour progress assessment.

Observation enables data collection about what is, but not why, interview provides data on why and secondary data provides context for generalisability. Qualitative questionnaires provide broad data that can be used to compare with other results. Results from the case study were used to develop an early model, based on interview, later tested and developed within the case study using a range of results.

Research in Other Settings

Qualitative questionnaires were used to check the model, developed from data in the case study for fit or generalisability within the case study and outside of the case study. This is particularly relevant to ensure that theory developed from the project is relevant to midwifery practice in a range of locations in the North East of England and the UK. A qualitative questionnaire is an efficient way of increasing the accessibility of potential respondents within each setting. This method has been used successfully in studies undertaken on health care by the research team (Close & Proctor, 1999).

Interviews were also conducted on a small scale in one setting outside of the case study to follow up leads in the data from the case study concerning the impact of contextual issues, linked to working in different organisations with slightly different expectations for practice. This process also enabled verification of analysis with experienced midwives who were not part of the case study.

Issues of Sample Selection

Within this research project selection of samples was determined by theoretical considerations on the basis of concepts that have theoretical relevance to evolving theory. Sampling was undertaken in a purposeful way in order to clarify concepts or look for differences when developing categories. This regime requires research to follow leads, look for exceptions, pursue particular skills in use and generally arrive at a stage of completeness (saturation) where nothing new relating to the developing model is discovered (Appendix 2: List of respondent codes).

v) Considering Data Analysis Issues

Qualitative analysis is used throughout to analyse data. When analysing data from field study and interviews conducted early in the research, an 'interpretive, naturalistic approach' was used to identify themes and ideas provided while trying to address the research questions from the perspective of the participants (Denzin & Lincoln, 1994). This created the opportunity to generate new ideas about midwives working and learning in relation to labour progress assessment, and resulted in the development of a provisional model to explain this. In contrast, the questionnaire used in the study presented questions or statements to which respondents were asked to reply. Some of these questions were very specific and others oriented the type of responses but permitted a response in the form of an answer that was at the discretion of the respondent. As the research progressed analysis was more structured and concerned with confirming, predicting and checking out prior analysis. However, at each stage there was flexibility for respondents to take a lead and determine the focus of data collection.

The desire to develop grounded theory has motivated the approach to analysis used within the project and axial coding (Strauss & Corbin, 1990) was used to make connections between categories and to examine the phenomenon, in this case labour progress assessment in terms of causal conditions. Although grounded theory methods of coding data were adopted within the analysis and categories arising from the data were developed from the codes, previously learned theories and first hand understanding of how midwives practice also influenced the process of analysis. While theorising was grounded in the data, because it arose from the data, it was being influenced by interpretation based on knowledge of prior theories and the contribution of published work in a related field that seemed significant to this study.

In particular the contribution of perspectives on action research provided an orientation for the project towards reflective rationality and a focus on the action context of knowledge in relation to labour progress assessment, rather than a technical rationality orientation (research-development-dissemination) where the experience of

practice is at the bottom of a hierarchy of credibility. Reflective rationality recognises that professional action is complex and is influenced by the context of action (Altrichter *et al*, 1993). An example of this type of study is provided by Eraut *et al*'s (1998) model of practice knowledge acquisition that was developed to represent the work-based learning (what, how, factors affecting) of a range of professional groups.

Establishing Trustworthiness in Qualitative Research

For the qualitative researcher the issue of trustworthiness is associated with persuading the audience that findings are worth attention. While the potential for bias within the process is impossible to avoid because of the fallibility of the individual making judgements (Robson 1993), recognising the potential of bias helps to guard against it. The fallibility of human judgements in qualitative research identifies issues associated with 'representativeness', 'availability' and 'weighting' (Robson, 1993). If representativeness is assumed when it is suspect, there may be over-reliance on accessible informants and events, which may not be representative of the group being researched. When examining data, explanations provided might weight certain evidence, ignoring or diminishing the importance of evidence that may not fit the bias. Selecting the evidence to 'fit the picture' is considered to be 'holistic bias' (Robson, 1993).

Qualitative research projects must address the issue of trustworthiness within the project design, particularly as research carried out in naturalistic settings is often criticised on the point of trustworthiness. Lincoln and Guba (1985, p 290) provide acceptable criteria for establishing trustworthiness in research with human subjects in the form of four questions:

- 1) *Truth Value*. How can one establish confidence in the 'truth' of the findings of a particular enquiry for the persons with which, and the context in which, the enquiry was carried out?
- 2) *Applicability*. How applicable are these findings to another setting or group of people?

- 3) *Consistency*. How can one have confidence that the findings would be replicated if the study were repeated with the same (or similar) persons, in the same (or similar) situation?
- 4) *Neutrality*. How can we be sure that the findings are determined by the respondents and the situation and context, and not by the biases, motivations, interests or perspectives of the inquirer?'

Lincoln and Guba (1985) also propose four alternative concepts that reflect the assumptions behind a qualitative research strategy and establish trustworthiness. These are 'credibility', 'transferability', 'dependability' and 'confirmability'.

Credibility

The intention is to demonstrate that enquiry is carried out, such that the subject of the enquiry is accurately identified and described. Techniques to enhance credibility include prolonged involvement (time to learn the 'culture', test for misinformation, build trust and go through the iterative procedures), persistent observation (sufficient focused observation to bring depth to the study), triangulation (use of evidence from different sources, using different methods to collect data and different investigators), peer debriefing (exposing analysis and conclusions to peers) and negative case analysis and members checks (following up evidence that goes against the picture being built up, and checking the conclusions with the participants in the study). There is the need to recognise if all parties have an interest in presenting a misleading case.

In an attempt to develop depth within the study, one-to-one interviews and field study were adopted. These methods when combined with follow-up interviews with individuals, and the use of client labour records, introduce triangulation and enhance identification of misinformation. Misinformation may have occurred within interviews because participants wanted to represent themselves in a particular way. However, interviews were important to gain an understanding of the knowledge associated with clinical practice. Misinformation does not simply reflect deliberative strategies, rather it may reflect habitual or routinised practice in situations where action is 'hot' and midwives are less aware of their decision-making processes. The role of observation is to check

for misinformation, and to gain an understanding of the complexities of the context of practice. The contrast between results from different methods of data collection in itself is of interest as it may be a reflection of type of action knowledge, selected for the circumstance or of inhibiting factors in the context of practice that may only be evident in specific circumstances.

According to Robson (1993) reliance on 'the human instrument' is of central importance in naturalistic enquiry, where the qualitative researcher defines the problem and instruments, samples, collects and analyses data and writes up the results and the process. The issue of representation of reality is important in considering the relationship between the researcher and the situation being studied. Qualitative research recognises that there is not one objective reality. Representation of reality is based upon an interpretation by the researcher of the social phenomenon being studied, and Woods (1999) identifies the insights that can arise from 'deep familiarity' (p3) with the scene and the individuals taking part. It is important that the researcher avoids making assumptions in advance of discovering issues in the data. In this respect Woods (1999) speaks of making what is familiar strange and avoidance of taking things for granted while questioning the basis of action. According to Woods, as knowledge is never total or certain there is no fixed truth in social science, but rigor in methods, application and writing can communicate a representation of reality that reflects 'critical', 'analytical' or 'subtle' realism' (Woods, 1999, p3).

As a researcher who is also a midwife I recognised the potential to influence responses of the participants who may identify with me in particular ways. Early interviews established that the respondents had assumptions about shared knowledge, views and attitudes, and this seemed to shorthand their descriptions. The experience of these early interviews was valuable as I developed interviewing skills by which to obtain detail and to draw the midwives into full description. Probing, challenging, encouraging, paraphrasing and accepting the position of the midwife were strategies that I adopted. There was the potential of bias in the interpretation of responses that may reflect ways of viewing midwifery practice into which I have been socialised. On the other hand prior knowledge contributed insight into practice unavailable to other researchers.

The methodology sought to promote partnership between the researcher and respondents in the study and acknowledged that co-construction was an inevitable and positive factor in developing knowledge of the action context.

Various ways of checking out researcher interpretation of data were used. Transcript material was made available to individual interview respondents, and follow-up interviews were conducted with three interviewees to enable confirmation of interpretation or reinterpretation where necessary. This procedure was used early in the project when interview was being used as the data collection method and this provided an opportunity to check out conclusions before multiple methods provided an alternative method of checking understanding. Results and analysis have been made open to scrutiny by peers such as project supervisors, a midwifery advisor, lecturers in midwifery, within seminars and conferences attended by midwives, within lectures attended by qualified and student midwives and in a published research paper (Sookhoo & Biott, 2002). Papers for publication and conferences were subjected to a peer review process (Appendix 12).

Transferability

The responsibility for making a generalisation or transfer lies with the person making the decision (the user). The reporting of a study should be such that sufficient information is made available for the transferability judgement to be possible. This is achieved by providing a 'thick description' in which everything that the reader may need to know to understand the findings is made available. This description is not part of the findings rather they are interpreted in light of the description.

Dependability

Dependability is a necessary part of credibility as a study that is credible is also dependable. Dependability is concerned with following and documenting the research process such that clarity and systematic procedure is evident and bias is safeguarded against. To address dependability data in the form of audiotape recordings and handnotes were transcribed and these were examined to identify codes (Appendix 3).

In the early part of the study transcripts were examined line by line to produce open codes. These codes were developed into categories with dimensional ranges (Appendix 4) (Strauss & Corbin, 1990). Categories provided the basis of an early project model (Appendix 1). Following this, coding was applied as a more selective process to test the model by identifying themes from the model or relationships between elements of the model in the data contained in transcript paragraphs (Appendix 5). A comparison of data against the model of learning (Eraut *et al*, 1998) was made in notes and diagrams during the process of the study in order to provide openness for scrutiny and to identify targets for sample selection based on theoretical determinants. Provisional analysis carried out when five in-depth interviews were completed, was presented as a short paper to discuss with interviewees during repeat interviews (Appendix 6). When the project model was fairly well developed the data from individual interview transcripts was compared with the model systematically. The descriptions (Appendix 7) were used to compare and contrast individual participants within the case study (unit 'A') with each other, and with participants outside the case (unit 'B'). To clarify the process of analysis and synthesis during the project, in particular during the final period of analysis, each type of data set was written up for each unit sampled ('A', 'B' & 'C') and then integrated by unit and data set to facilitate comparison within and between each unit. This increased the transparency of the process of analysis for project supervisors. In addition the frequency of responses or participants characteristics that are analysed are discussed and illustrated using tables (e.g. Figures 4.2, 4.4, 4.9, 5.4 & 5.5) and diagrams to demonstrate the process of synthesis (e.g. Figures 5.6, 5.7, 5.8 & 6.2).

Confirmability

This is present when sufficient information is available to judge the adequacy of the process and confirm that the findings flow from the data. This requires the availability of materials that can be used to assess the process such as data in the form of transcripts (Appendix 3), open and axial codes (Appendix 4), analysis in the form of categories and models (Appendix 1), applied to existing frameworks (Appendix 5) and showing the relationship between existing framework and data (Appendix 6), memos

(Appendix 6.6), schedules for the research (Appendix 8), and information for respondents (Appendix 11).

To address confirmability interview data has been collected in the form of audio tape recordings, later transcribed and observation has been recorded as field notes or case descriptions made at the end of a clinical observation. Memos and diagrams have developed during the analysis and demonstrate links between data collection, analysis the next stage of theoretical sampling.

vi) Describing the Project Process

This section provides information about the way the project was conducted.

Selection of Samples

Within this research project sample selections were determined by theoretical considerations on the basis of concepts that have theoretical relevance to evolving theory. Sampling was undertaken in a purposeful way in order to clarify concepts or look for differences when developing categories. This regime requires research to follow leads, look for exceptions, pursue particular skills in use and generally arrive at a stage of completeness (saturation) where nothing new that relates to the developing model is discovered.

Selecting the Sample of Maternity Services

Three maternity services were selected for inclusion in the study. The first service was selected as the case study at the beginning of the project and two further services were selected later in the study, based upon theoretical issues determined by results.

The maternity service that provided the case study (unit 'A') was selected because it seemed probable that it was responding to contemporary recommendations for labour care, and that because of this it may provide insight into how intrapartum progress

assessment was being undertaken in contemporary midwifery practice. It was anticipated that from the results of the case, concepts of significance to undertaking labour progress assessment and factors that influenced learning progress assessment work would emerge, and that these would represent midwives' attempts to provide women centred intrapartum assessment.

Although unit 'A' is a consultant obstetric unit, midwives are given discretion by the organisation and the obstetricians to refer women in labour to obstetricians if and when the need arises. Local policies and procedures support referrals and decision-making by midwives and there is no policy for routines of assessment in labour for low risk women. The maternity service (unit 'A') has sponsored the autonomous management of intrapartum care for low risk cases by midwives and medical direction is thought locally to be less apparent than in other maternity units. For these reasons the maternity service is considered an appropriate setting to explore how midwives learn to undertake intrapartum assessment for low risk cases when they are given the discretion to do so. Unit 'A' is a district hospital and community midwifery service in the North East of England. The service employs about 85 midwives (hospital, community and midwifery bank) and provides care for 1650 women giving births each year (2002: 1641), of which 70% (2002: 1142) are vaginal births assisted by midwives. About 36% (2002: 591) are low risk, term pregnancies (37-42 weeks) who do not require epidural or induction of labour and who do not have medical conditions: although 10% (160) of low risk cases were subject to augmentation of labour in 2002. The unit's Caesarean section rate of 20% is comparable with other units in the UK (DoH, 2004). The unit has eight labour delivery rooms and an additional room with six beds for women in early labour. On each shift the labour ward has 4 midwives (1 G grade) and one health care assistant on duty. The same numbers of midwives are available on the postnatal / antenatal ward at any one time.

Unit 'A' was identified as the midwifery service for the case study because of its profile that was anticipated to be positive for the purpose of building knowledge around the research question. However, unit 'A' may not reflect midwifery practice knowledge in general. This is not necessarily a problem in qualitative research, as if a case study is

adequately described the individuals reading the results are able to form an impression on generalisability themselves. However, a means to evaluate the 'generalisability' or 'applicability' of the findings to other settings and to contrast such settings with the case study is useful in developing midwifery practice knowledge.

Validity and reliability were tested in the study by exploring how far the model of progress assessment, developed from the results of the case study (unit 'A'), was typical of midwifery practice within the NHS maternity services based on a consultant unit and community services in the North East of England and a Midwifery Led Unit in another part of the UK. Units were selected to reflect differences in size, caseload, case type and apparent variations in midwifery autonomy. Unit 'B' is located in the North East of England and is also a consultant unit with community services. This unit is a very similar size to unit 'A', with similar numbers of midwives as employees (74) and deliveries per year. The unit was selected because of the apparent similarity with unit 'A' except that unit 'B' has a policy that requires midwives to undertake an active management style of labour progress assessment, every four hours for high risk and low risk cases. In this respect it appears that midwives have less autonomy than in unit 'A'. An additional difference is that unit 'B' has a practice development midwife with an educational qualification.

Unit 'C' is a smaller maternity unit with less midwife employees (25) that provides hospital and community care for low risk women. This unit is based in a rural location in Wales and is not provided with medical cover. Women who require obstetric care have to be transferred to a local consultant unit. A development in Wales prior to collecting data from unit 'C' was the introduction of the All Wales Pathway for Normal Birth. This unit was selected because midwives work in isolation from obstetric staff and unlike midwives in units 'A' and 'B' they have a low risk caseload, as opposed to a mixed caseload of low risk and high risk cases. It was expected that the different levels of autonomy concerning progress assessment for low risk cases between units would provide differences in results and that midwives from unit 'A' would possibly report less use of routine assessment than unit 'B' and unit 'C' may reflect even lower use. Although midwifery led units were considered in principal to have greater opportunity than unit

'A' to avoid routine assessment of progress, the potential impact of the recently introduced care pathway for normal birth was unknown.

The Sample Sizes for Each Method

Within the case study (unit 'A') a broad range of data collection methods were employed and samples were selected on the basis of theoretical development. In unit 'B' and 'C' questionnaires were distributed, and in unit 'B' interviews were also used. This process will be described later in this chapter but the following list provides the resulting sample size for each method of data collection within each unit. The project incorporates 30 hours of taped interview, 200 hours of field study (including 100 hours of case observation) and distribution of 180 qualitative questionnaires.

The Case Study (unit 'A')

Individual Interviews -	There were 15 interviewees and as three respondents had repeat interviews the total number of interviews were 18.
Field Study:	
Observation of Cases -	This was carried out with seven women experiencing spontaneous labour who were identified as low risk and suitable for midwifery care and expectant management and the midwives who were providing care and carrying out progress assessment.
Labour Records -	Secondary data from a sample of 29 midwifery records of labour of women who had given birth in 2003. This sample is made up of 7 prospective entries made during the field study phase in respect of the cases that were observed, and 22 additional retrospective entries for low risk cases giving birth in unit 'A'.
Qualitative Questionnaire -	Distributed to all of the midwives employed in unit 'A'.

Unit 'B'

Individual Interviews -	There were 4 interviews.
Qualitative Questionnaire -	Distributed to all of the midwives employed in unit 'B'.

Unit 'C'

Qualitative Questionnaire -	Distributed to all of the midwives employed in unit 'C'.
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Selecting the Sample from within the Case.

Selecting the sample for interview and observation during field study within the case (unit 'A') conformed to principles of theoretical sampling and this section discusses the process.

As interview makes knowledge communicable it was decided to begin the study using this method. There were additional practical reasons such as familiarity and skill with this method that the researcher had developed with previous studies, the opportunity to gain an appreciation of the culture of the unit and to obtain a focus before engaging field study methods. A table with codes for interviewees and observation respondents is provided in Appendix 2.

At first two midwives were identified as participants for interview (IA1 & IA2) on the basis of senior grade, responsibility, experience and knowledge of the maternity unit. The bias at this point was that I selected them because I knew who they were and what their roles were within the organisation. Having conducted these two interviews the second respondent at the end of the second interview gave me the name of another senior midwife and advised that I should interview her because of her years of experience, and because of her understanding of why practice had developed as it had within the unit. I carried out an interview with this midwife (IA3) but having conducted three interviews I was aware that the midwives I had interviewed were all senior (G grade or above) in the organisation.

Data indicated that seniority and experience might influence the way that individual midwives practice and I discussed this with the third respondent. We identified two further potential respondents who were employed as staff midwives. This fulfilled the seniority element and as one had many years of experience and the other was relatively inexperienced in caring for women in labour this provided an opportunity to consider experience. Both of these midwives had recently been re-allocated onto the labour ward and I anticipated that this would be reflected in their recognition of how they were practicing. The less experienced midwife was interviewed next (IA4) and the

experienced midwife completed the batch of interviews (IA5). These interviews were completed between June 1998 and July 1998.

The intention was to interview each of these midwives individually a second time and to present results to them for them to verify. Interviews were conducted with three respondents (IA1r, IA2r & IA4r), but two of the respondents had taken early retirement (IA3 & IA5). A decision was made not to contact the two midwives who had retired and not to carry out follow up interviews with them unless they wanted the opportunity. They were provided with their own interview transcript and given the opportunity to request further involvement, however this did not happen. These interviews were completed between April 2000 and May 2000.

A decision was made to conclude this phase of interviewing and analyse the data from the three remaining respondents. Later in the study replacement midwives would be recruited. Difficulty in recruiting individuals was not anticipated; on the contrary, at this point no one had rejected the opportunity to be interviewed. Recruiting new participants was thought to provide an opportunity to present the analysis of data and the emerging model of progress assessment for their criticism. An additional benefit was the opportunity this presented to recruit respondents from community practice. This had not been considered essential previously as it was anticipated that the assessment style described by midwives working in hospital would be varied, however this variation was not particularly apparent in results and I needed to look for cases that were exceptional in that a holistic assessment process was used for low risk cases. Community practitioners were considered to be the most likely source.

The field study phase of the research study included observation of midwives providing clinical care and engaging in labour progress assessment. Selecting care episodes to observe reflected various complex factors such as the availability of women in labour from which to select, the type of case (low risk, spontaneous labour) and elements of opportunity. It was decided that there was an increased opportunity to observe midwives providing less routine and more holistic care during the night, as most normal births occur at this time and medical staff are less likely to be around and influencing

care. Having planned to observe during the night the intention was to observe during the day to witness how planned inductions, medical rounds and elective procedures influenced midwives assessment style. However, as routine assessment was adopted by midwives providing care during the night and there was no observed variety between individual midwives when assessing progress, day-time observation was rejected as superfluous to theory building.

Eight, twelve hour shifts on night duty were selected for observation and inclusive of breaks this accumulated 100 hours observing clinical practice. This was undertaken as four blocks of two night observation. This model was selected to provide sufficient emersion in the field, created by the different teams making up the care network for a block of night duty, while realistically recognising the constraints of long duties on recording episodes and analysing data. The first block of observation began on night of the 30th May until night of the 31st May 2000.

Field study involved spending time (about 200 hours) in the maternity unit where I attended meetings, had informal discussion with staff, collected information from case notes, the birth register, white board in the office, and worked on the labour ward to observe intrapartum care and assessment. In January (14th, 15th & 22nd) 2003 I spent time (16 hours) in unit 'A' familiarising myself with the unit and collecting data retrospectively from client notes and labour records. Twenty-two sets of labour records were examined for normal deliveries in the preceding 4 weeks. In addition seven cases that were part of the observation element (25 Jan - 1 March 2003) were also examined. These twenty-nine cases records included written entries made by 30 different midwives about labour signs and diagnostic procedures.

Three further blocks of observation were completed on:

- night of the 24th January and night of the 25th January 2003
- night of the 18th February and night of the 19th February 2003
- night of the 28th February and night of the 1st March 2003

The sample of night duty included nights during the week and nights at weekends and was considered representative of the changing working conditions during the week. The actual nights included were Tuesday night (2), Wednesday night (2), Friday night (2) and Saturday night (2). These nights are considered representative in that they reflect the number of low risk cases expected each shift in a consultant unit that has in the region of 1600 deliveries a year. The representativeness of the shifts selected has been verified using birth register information, which provide comparable normal births and low risk cases.

During the field study phase a further ten midwives were interviewed. Seven interviewees were selected and interviewed for approximately 30 minutes as part of the process of understanding midwives' progress assessment in a context of the case study and to ask questions that emerged from observation (IA6, 8, 10, 11, 12, 13 & 14). Three of the interviews were to gain an overview of the service and an appreciation of how, if at all, assessment was different in the community (IA7, IA9 & IA15). Two interviewees were community midwives (IA7 & IA9) and one was responsible for risk management procedures within the maternity service (IA15).

Qualitative questionnaires were distributed as a census to all of the midwives employed in the case study (85) in April 2003 and 21 completed forms were returned. Wide access to respondents compensates for the effect of potential bias in selecting the sample of respondents for interview and observation and made it feasible to establish if the model was representative of midwifery practice within the case study. It also provided an opportunity to check for discrepancies or follow new lines of enquiry that emerged from the questionnaires, with further interviews.

Selecting the Samples from outside the case study in units 'B' and 'C'

Qualitative questionnaires were distributed as a census to each of units 'B' (74) and 'C' (25). In addition taped interviews lasting two hours were conducted with midwives from unit 'B' (IB16, 17, 18, 19). This was to discover the impact of obstetric unit policy on developing knowledge and skill in progress assessment, in particular if an expectant management style of assessment had developed, and to determine if assessment was

viewed in similar ways between midwives in units 'A' and 'B'. There was the possibility of difference resulting from a history of educational links with different Colleges of Nursing and Midwifery. In particular the relationship between developing skills in abdominal palpation were explored. In addition to the potential difference that could be ascribed to context of work area, two interviewees selected were also qualified Midwife Teachers; one employed within unit 'B' with a responsibility for practice development (IB16) and the other employed in a University with a role as clinical Link Tutor for unit 'B' (IB19). One interviewee had worked within unit 'A' prior to moving for promotion (IB18).

Applying Data Collection Methods within the Study

The case study (unit 'A') was used to derive knowledge, and multiple methods of data collection are used to achieve this. This was tested for fit within the case study and in settings outside of the case (units 'B' and 'C'), using a qualitative questionnaire that was distributed as a census of midwives in each identified maternity service. Limited interviews were also used in unit 'B' to investigate contextual effects on decision making. This section discusses and provides a rationale for the way that data collection methods have been applied within the study.

Case Study Methods

Within the case study (unit 'A') a focus on theory building was associated with an attempt to interweave the various data collection methods making up interview, field study and qualitative questionnaire over the duration of the project (Woods, 1999). This provided the opportunity to develop the theoretical structure needed for the qualitative questionnaire and then follow up findings using a limited amount of field study and interviews within the case (unit 'A'). A Schedule of Research Activity (Appendix 8) was used to guide data collection, but was interpreted flexibly and adapted during the research process.

1. Individual in depth Unstructured Interviews.

All interviews carried out within the study were audiotaped, transcribed, and presented to participants to verify the accuracy of the transcribed material and satisfy the

participants that they had not been misrepresented by themselves or the process of transcription.

Eleven of these interviews were carried out with respondents from unit 'A'. The first interviews were carried out with five individual midwives and were conducted as semi-structured discussions that lasted about two hours. This approach was used to encourage interviewees to provide narratives about assessing intrapartum progress. Respondents were encouraged to describe their practice in terms of assessing labour progress, describe and discuss their experiences, development of expertise and to share knowledge and insight into the relevance of information when making an assessment. Encouraging the use of examples of 'real cases' to explain meaning or develop clarity was positively received by participants. The interviewee was encouraged to take a lead in deciding what is important about assessment and the researcher reacted by developing questions from the stories and positions presented, either seeking clarification or checking for general application or specific use of particular methods of assessment.

While the assumptions of respondents about the priority and importance of particular information and practice was of importance, the researcher had also developed preconceived ideas about what was relevant to the study. The areas of interest that had been identified were prepared in advance of these interviews and were shared with the respondent at the beginning of the interview (Figure 3.1). At the end of the interview this list was used to confirm that the areas on the list had been covered or as a tool used to explore any of those aspects that had not emerged or been followed up by the researcher during the interview. In general, the items on the list were thought to have been fully explored at the end of each interview. A full transcript was prepared for each interviewee and they were given the opportunity to comment further if they wished or to identify if they thought they were misrepresented in the transcript.

During each interview a reflective approach was adopted to facilitate the process and access information. As a result of experience in education, from using interview skills

within research and other aspects of professional role I was able to focus less on some aspects the interview process (tacit knowing-in-action) while focussing to a greater extent upon the information provided by respondents and selecting interview strategies to follow leads and check out perceptions. This relied upon analysis carried out during the interview (reflection-in-action) that directed the process, but it was recognised as provisional, with the purpose of implementing lines of enquiry during the interview. Following each interview analysis was carried out on the transcripts and reflection on the process of interview was also used to make decisions about the subsequent interview process and issues of sampling in order to build theory. Analysis of the data transcripts was also undertaken to build theory and this is discussed in a later section.

Figure 3.1: Areas of Interest Identified by Researcher

- Information used by the participant to assess progress in labour
- Methods of assessment used to collect information
- How all the information and methods are combined, and if some information or results are prioritised
- When a particular type of assessment method is selected in preference to others
- The processes involved in developing the skills and knowledge concerning assessment
- The influences of individuals or circumstances (positive or negative) on knowledge and skills
- Environmental (including effect of colleagues) influences on how knowledge is used in practice
- Are some forms of knowledge or information given more status than others?
- Are some types of information or practice suppressed, hidden or shared with particular individuals?
- Are intrapartum women aware of the different ways midwives may assess progress?

Three of the first five interviewees took part in a second in-depth individual interview. This interview had more structure than the first interview, as the purpose was to generate data, but also to validate results and check the developing model for authenticity with the interviewees who had provided the data in the first place.

Interviewees were provided with a transcript of their first interview before the repeat interview. They were asked at the beginning of the repeat interview if the transcript represented their views accurately. All participants accepted the transcript as a reflection of the interview. The next part of the interview required the participants to read a short paper that summarised the analysis from the initial five interviews, and that they comment on the paper (Appendix 6). Some of the responses were general responses to the paper and some were specific to sections of the paper. Hand notes were made of these comments, however the remainder of the interview was audiotaped. Discussion in the interview was based upon clarifying understanding of the hand notes and following up areas of interest. The same reflective process was followed during the interview and analysis was undertaken after each one and on the batch when three had been completed.

In-depth interviews were suspended after this phase until field study began. During the field study a further three midwives were recruited for in-depth interviews. These interviewees had a semi-structured format. Respondents were asked to present their perspectives, talk about their practice, use of and approach to labour assessment and preliminary results were discussed in relation to contextual issues. In particular discussing how an approach to assessment was based upon particular types and locations of experience and how contextual issues in the workplace had an influence on care.

2. Field Study

This consisted of observing critical events, opportunistic interviews between episodes of care and examining completed labour records in case notes and on the labour summary board. The developing model (Figure 6.1 & Appendix 1) was used to frame observation and identify what to observe. This was discussed with midwives at the beginning of each shift to identify the most appropriate clinical cases for observation.

The decision was made to observe midwives when they examined women to make an intrapartum assessment of progress (examination, recording, discussing, reporting and information giving and negotiation with clients and colleagues). This was carried out on the labour / delivery ward where intrapartum care was provided and recorded as hand

notes. Seven low risk cases were observed over eight night-shifts, and as I was confident at the end of this period that I would not detect any new leads, as variation in assessment style was not witnessed, I concluded observation of cases and did not carry this out on day duty. The first block of case observation (night of the 30th May until night of the 31st May 2000) was used as a preliminary introduction to the area and was an opportunity to try out prospective recording of case details and to negotiate and explore what it meant to adopt a role as participant observer. I discovered that making hand notes at the time got in the way of observation and got in the way of expectations that clients had that I engage with them at the level of participating in their experience, even though they recognised I was not fulfilling a role as a clinical midwife. It was more complex to explain to midwives and women what role I was adopting than anticipated. I had discussed my role in the clinical area with a Supervisor of Midwives and agreed that I would not undertake midwifery duties, except in an emergency. Because I was present in the labour room with the woman in labour, the midwife providing care and in most situations one or two birth partners, a second midwife did not attend for the birth. It was the usual case that a second midwife was not present, but when the midwife was distracted with instrumental aspects of care and assessment relatives and clients frequently expected interaction. I avoided undertaking a clinical role and clarified that I would not carry out clinical intervention (e.g. giving intramuscular Syntometrine), but I did engage in housekeeping such as bed-making, cleaning and making tea, when there was no clinical care being undertaken with low risk women. In part this was to gain acceptance but it also increased the opportunity for observing discussion between staff, staff and clients or relatives.

In three subsequent case observation blocks between January and March 2003, hand notes were made between episodes, notes were made from labour records and these were typed up as cases retrospectively at the end of the shift. These case details also incorporated insight gained from opportunistic interviews that were used for clarification and details from contemporary midwifery case note entries of progress. I also observed and audio-taped reports given at hand over to the team of midwives beginning the new shift. These details also were incorporated where relevant within the case record that I made.

During field study taped interviews lasting 30 - 45 minutes were conducted with midwives on the labour ward. These interviews were either used to follow up specific leads, clarify or understand what was happening or why particular decisions were made during practice or to gain an idea of the extent that the practice I was observing was generally representative of the type of practice adopted by midwives on the labour ward. Seven short interviews were conducted with midwives in unit 'A'.

3. Qualitative Questionnaires within Case Study

Qualitative questionnaires were used within the case study. The questionnaire (Appendix 9) incorporated questions about:

- Organisational Factors.
- Individual Profile.
- Diagnostic Processes incorporating open ended questions about assessment technique, and vignettes requiring an open ended response or selected response with rationale.

A major advantage of this method is that it accessed large numbers of respondents, in this case the whole population of midwives employed in the Trust. This would not have been possible using another method. Questionnaires therefore were a check on the generalisability of other findings within the case, and in addition they provided a profile of midwives and organisation that could be used to compare other units for contextual issues that may have resulted in different practice.

In this project questionnaires were used once sufficient clarity about intrapartum assessment techniques in use had been developed and when sufficient focus was developed about which leads should be followed. Insight came predominantly from in depth interviews, although an initial block of field study had been completed and insight had been developed at this stage of the research about the dominant form of practice within unit 'A'. It would have been desirable to complete more field study prior to designing questionnaires, unfortunately the time frame for ethics application did not permit this and complete questionnaires had to be provided for three Local Ethics

Committees and Research Committees. Leads from field study that were not fully exploited in questionnaires were followed up using field study and interviews.

Research Methods used in Other Settings

Methods used to collect data in settings outside of the case study were qualitative questionnaires (units 'B' and 'C') and individual in depth interview (unit 'B').

The same questionnaire form was used for each unit permitting comparison of unit profile for analytical purposes. Individual interviews were used in unit 'B' and this provided clarification about certain practice issues and provided verification for the data collected in unit 'A'. Results from field study carried out within the case study (unit 'A') had confirmed that labour progress assessment was carried out as a routine, based upon limited external and internal criteria of progress. This confirmed what interview subjects had proposed as the way progress assessment was carried out on the hospital labour ward. Respondents recognised that in the community assessment was different and this was also confirmed by interviewing and in addition two midwives described using an expectant management style in hospital. As the midwives who worked in unit 'A' considered their practice to be more midwifery oriented and client centred I wondered how their practice was different from assessment work in other consultant units. Interviewing within unit 'B' provided an opportunity to investigate this and to explore issues for education and training (see page 86 for a description of Maternity Units).

vii) Approach to Data Analysis in the Study

Qualitative analysis has been used within this project. Raw data from the case study has been transcribed into notes and observation incidents have been distinguished from the practice context (Silverman, 1997). The relationship between the categories found in the data was interrogated for comparison with a model developed from the data and subjected to testing during the research process. During data collection enquiry

focused upon searching for 'negative cases' which do not quite fit or which contradict the model and for information that added to its completeness. This process led to additions to and developments in the model and was repeated until no further information or negative cases were found and analysis was complete. Using different methods of data collection within the project (triangulation) increased the chance of discovering discrepancies in the data when identified, contributed to theory testing and building. When different sources of data give the same results they cross validated each other and when different results were obtained explanations were looked for in the research process, in contextual factors and in terms of the type of knowledge and the context of use.

Analysis was carried out after each interview or observation, this was transferred into memos to capture the process of breaking down and building and directing the sampling. Diagrams, charts and descriptions or explanations were used to record results of analysis. The process of research conforms to procedural expectations linked to the demonstration of trustworthiness in qualitative research (Sanger, 1996; Sarantakos, 1998). To make the process more transparent, memos (Appendix 10), diagrams (Appendix 1) and tables that developed during the analysis have been shared with supervisors. These demonstrated the links between data collection and analysis, and determined theoretical sampling.

A desire to develop grounded theory has motivated the approach to analysis used within the project. For the first five individual interviews the approach to theory building described by Strauss and Corbin (1990) was used. Full transcripts of each two hour long interview were analysed line by line after each interview to identify 'open codes' in the form of concepts, representing discrete events or phenomena. Concepts were then examined and compared and grouped into categories and sub-categories. The properties of categories were explored in terms of attributes and dimensions within memos (e.g. uterine contractions). These properties were used to develop the project model, to make connections between categories of the model and to examine the phenomenon, in this case progress assessment in terms of causal conditions (need to distinguish onset of labour), context (available information, practice knowledge),

intervening conditions (clients social circumstances, response to pain, policies), strategies for action interaction (method of assessment adopted, collaborative working) and consequences (outcome of diagnosis, level of intervention, learning). Various levels of condition were identified during the analysis, which created initial problems in organising the concepts and relating the categories.

Although grounded theory methods of coding data were adopted within the analysis and categories arising from the data were developed from the codes, previously learned theories and first-hand understanding of how midwives practice influenced the process of analysis. Theorising arose from the data and was expressed as open codes and axial codes (Appendix 4), comparison of interview transcripts with Eraut *et al's* (1998) Framework for Professional Learning (Appendix 6) and categories and models showing relationships between them (Appendix 1). Grounding in data such as interview transcripts and hand notes from observation (Appendix 3), is demonstrated in an example where categories of transcript content are inserted into a section of interview (Appendix 5). As theorising was being influenced by interpretation based on prior theories this raises the question of researcher bias. However, the grounded theory perspective that explanations should make sense to those that are being studied was demonstrated when participants verified analysis. This was achieved by carrying out repeat interviews during which a draft paper (Appendix 6.12) and diagrams of labour trajectory (Appendix 10) based on interim analysis was used to structure discussion, and by making available memos (Appendix 10.4) and transcript summaries (Appendix 7) to supervisors. In addition Verification of analysis by participants and other groups of midwives and researchers formed part of the iterative process that was used to develop the thesis.

In addition to the prior practice knowledge of the researcher, the contribution of published work in a related field seemed significant to this study. For example, Eraut *et al's* (1998) model of practice knowledge acquisition, developed for a range of professional groups, that looked at professional learning in the workplace (what, how, factors affecting). This study adopted Eraut *et al's* generic model as a framework for analysis. The model, which identifies professional learning and promotes evidence based

practice needed refinement in order to apply to midwives, in respect of a particular set of skills and practice knowledge. The model developed within this study addressed how skill and competence are influenced by the context of care, including access to technology. This model was particularly useful in organising the data and identifying meaningful relationships between concepts and categories. Following the initial five interviews a provisional project model was developed which demonstrated how categories related and identified the concepts making up each category (Appendix 1). This model was used during the remainder of the process to guide research and provide a focus for analysis and the development of the final Project Model (Figure 6.1).

Analysis was carried out concurrently during the study for the purpose of directing data collection and sample selection. This involved identifying the emerging issues and testing them against the model for fit. When fit was not present data collection concentrated on providing an explanation for this. This process led to decisions about selecting respondents, moving between different types of data collection and directing the focus of the enquiry during the data collection episode. What I chose to pay attention to was a feature of selectivity, based upon interpretation of data and its relationship with the model.

At the end of the project analysis was revisited and was conducted in a systematic way. Each set of results from the case study (unit 'A'), representing each method of data collection was described and analysed in relation to the project model. Following this, analysis of results from each case study data set (interview, field study and questionnaire) were combined and compared against themes from the project model. This process was repeated for data from units 'B' and 'C' so that the data became increasingly integrated. The result of this process is that while systematic analysis has been undertaken, analysis of each theme from the model incorporates data from each data set, and is integrated rather than segregated. This has facilitated the examination of the validity of findings across the data sets.

viii) Ethical Considerations

Ethical approval was obtained from the three Local Ethics Committees and Research Committees involved in the study. Sheets giving information about the project were distributed prior to each research phase, and provided for respondents at the time of verbal explanation when obtaining consent (for the research and for quotation in published work). Written consent was obtained from all participants, including clients observed during field study case observation (Appendix 11).

There are ethical considerations involved in observing intrapartum care and assessment, which involves conversations and examinations about which the client may be sensitive and feel vulnerable. For this reason hand notes, rather than an audiotape were used in the vicinity of clients. Clients were selected for involvement as participants in this research during the birth process and at a point in their labour when pain or opiate analgesia may have distracted them. This is not always the case, but when it is the ethics of obtaining informed, written consent is dubious. In such a situation verbal consent was obtained following explanation and written consent was obtained as soon as there was understanding (assessed by midwife) as to what they are consenting to. In order to avoid this problem, information about the research was made available to clients when they were admitted to the labour ward. Although difficulties in obtaining consent for data collection were anticipated this did not occur. On the contrary clients and relatives were very accepting of my presence and some were interested and asked questions about the study and my role within midwifery.

There are ethical considerations in respect of the subject of the research and the methods of data collection that were used. There was the particularly sensitive issue concerned with the possibility of observing 'bad practice' and the possible conflict between my role as a midwife and a researcher. Practice that was observed did not place clients at risk, other than the risk of potential problems caused by birth technology used within the unit. On two occasions I made a verbal contribution based on professional knowledge: in one instance to advise on the labour mechanism because of the implications for the delivery of the shoulders (when a midwife failed to anticipate

the direction of restitution of the fetal head), and in another when I was directly asked to recommend any further 'first aid' action in a case of fetal bradycardia in the second stage of labour (I recommended that the woman turn onto her side). I had to be particularly careful that clients understood that I was not attending them as a clinical midwife and that my status was that of researcher. This was important because clients, relatives and midwives seemed to identify with my status as a lecturer in midwifery or as a midwife and this perception seemed to increase during field study as a result I clarified my non-clinical role with clients and explained that collecting data was the primary reason for my presence.

A particular concern is with the representation of practice in an area subject to power relations between competing professional groups (Hugman, 1991). The research has the potential to make transparent professional practice that may make the job more manageable but at the same time it is sometimes obscured by deliberative strategies from those who are not part of the culture because it does not represent current ideas of good practice. As a midwife researcher I was less likely to be blind to possible contradictions in practice and the needs of individual clients. It is also difficult not to vocalise contradictions between the ways that midwives practice and what are considered to be positive for women or midwives. It is therefore important to be sensitive when reporting results that may show midwives in a less than positive light and where possible it is important to provide explanations for the practice that is observed. Despite the sensitivity and difficulty of some research results it is important to report in an authentic and constructive way. This was the approach used throughout the project and midwives who participated in the project continued to be open about their practice.

CHAPTER 4: ANALYSIS OF RESULTS - THE DIAGNOSTIC PROCESS IN LABOUR ASSESSMENT

The model of Midwives Assessing Intrapartum Progress produced from this research incorporates the Diagnostic Process that midwives apply when assessing labour progress and providing care. This model incorporates elements of an apparently seamless process within which midwives gather information as clinical signs and process this information to arrive at a decision about labour progress and requirements for care. The diagnostic process represents the work that midwives undertake in order to fulfil the requirements of the job. Psychomotor and cognitive skills contribute to the diagnostic process that is subdivided artificially within the model into Information Gathering and Information Processing. Information Gathering is concerned with information that is available and recognised by midwives as signs of progress and Information Processing is concerned with how midwives weigh various information in terms of relevance, the inevitable location of uncertainty in diagnostics and in the resolution of the process when arriving at a classification of progress. This chapter presents the data that give rise to three categories: Information Gathering, Information Processing and Progress Classification. These categories are located in the project diagram under Diagnostic Process (Figure 6.1). The diagram shows how diagnostic information inputs into the process when information is gathered. Within the diagram (Figure 6.1) diagnostic information is labelled as Diagnostic Indicators and those that have arisen from the data in this project are presented as a detailed list in Figure 4.1 and discussed within the early part of this chapter. Categories that make up the Diagnostic Process that are identified within the project diagram (Figure 6.1) are presented and discussed in relation to findings, forming the sections of this chapter. They are:

- i) Information Gathering.
- ii) Information Processing.
- iii) Progress Classification.

i) Information Gathering

The results of this study demonstrate that Information Gathering is the process of collecting a range of information using observation, interpersonal skills and clinical midwifery assessment skills. This section considers the methods used and structures the presentation and discussion of results using headings that reflect the types of Diagnostic Indicators represented in the results.

Diagnostic Indicators

A variety of information is used by midwives within their diagnosis of progress and this is identified in the results of this study. As midwives use this information to assess labour and as a basis for diagnosis the term Diagnostic Indicators has been adopted as a label for this information (Figure: 4.1).

Figure 4.1: Diagnostic Indicators

External Signs		Internal Signs
<ul style="list-style-type: none">• Uterine contractions• Relationship of the fetus to the maternal pelvis:<ul style="list-style-type: none">Descent of fetal headFetal positionFlexionVisualising the fetal head or distension of the perineum.• Vaginal discharge:<ul style="list-style-type: none">A 'show' (blood stained operculum) or amniotic fluid• Fetal condition	<ul style="list-style-type: none">• Maternal condition and responses to labour:<ul style="list-style-type: none">Physiological and emotional conditionReactionsPain responsePostureBreathing noises• History of childbirth and labour<ul style="list-style-type: none">As maternal experienceFrom records	<ul style="list-style-type: none">• Cervical dilatation• Cervical effacement• Position of Os• Station of PP• Presentation and position• Flexion• Moulding• Caput succedaneum• Fetal membranes

One way that Diagnostic Indicators can be subdivided is to represent the source of information. For example signs from general observation of maternal reactions and maternal reporting of symptoms can be differentiated from midwifery clinical assessment that relies on inspection and palpation to identify signs and may be distinguished from signs that are available only when a vaginal examination is carried

out. The diagnostic indicators present in the results have been labelled respectively as External Signs and Internal Signs (Figure. 4.1).

While the diagnostic indicators presented in Figure 4.1 represent the results from the study, respondents do not report that they use all of these signs. Various types of information can be used to indicate the commencement of labour and arrive at a diagnosis of labour progress or provide information of parameters for labour to be categorised, for example as 'Low Risk' or 'Normal'. Midwives can gather available information in a number of ways that demonstrate differences in level of investigation, reflecting varying emphasis on proximity, identification with maternal experience, clinical skills and procedural investigation.

There are differences in the number of references to and the detail that midwives provide at interview and in questionnaire responses about using particular diagnostic indicators. This difference appears to reflect preferences that individual midwives have for particular external signs or reported symptoms. However within unit 'A' the preference apparent from interview is not supported by evidence from case note entries or from observation of midwives at work undertaking progress assessment on the labour ward. Comparing results from the different methods has revealed that the most apparent difference is in the relative reporting and use of external and internal signs of progress. While interview (Units 'A' and 'B') and questionnaire responses (units 'A', 'B' and 'C') emphasised the importance of external signs in low risk cases by the frequency of reference to them compared to internal signs, case note entries and observation (unit 'A') revealed prioritising of internal signs over most external signs. In addition specific external signs that midwives emphasised as important during interviews and in justifying diagnosis within questionnaire responses are commonly absent from labour records and are infrequently identified from observation of midwifery assessment practice. The following section will focus on the ways that midwives appear to focus on particular signs from the range of Diagnostic Indicators available to them. This will be achieved by presenting and discussing the reliance on signs sequentially, in sections that deal with External Signs and Internal Signs.

External Signs

External signs of progress are directly available to midwives if they are able to examine and palpate the pregnant abdomen (contractions, descent of the fetal head, position and flexion of the fetus and fetal condition as fetal heart sounds). External signs of advanced labour can be also be identified directly by visualising the perineum (fetal head, gaping of vulva and anus). These signs were described in interviews and in questionnaire responses, and midwives were looking for them during the observation phase. A show (blood stained discharge) or draining amniotic fluid can be visualised on the maternity pad, however, both these signs can be present when a client is not in labour. Although a heavy show and spontaneous rupture of membranes in late labour is often a sign that labour is advanced.

Women experience pain from uterine contractions and pressure from the descent of the fetal head as symptoms. These symptoms cause maternal behavioural changes that can be interpreted by midwives as indirect signs of progress. In early labour maternal behaviour is produced in response to pain from uterine contractions and it is evident as intermittent help seeking or based on coping strategies that dissipate between contractions. However, the instinctive maternal behaviour and noises that are more obvious in the later stage of labour result from expulsive efforts of the uterus and descent of the fetus. While physiological processes and changes are experienced as symptoms for women, midwives interpret maternal reactions to these experiences as signs.

Each type of external sign is represented in results from units 'A' (Case study made up of interviews, field study and questionnaires), 'B' (interviews and questionnaires) and 'C' (questionnaires). These are presented and discussed:

Uterine Contractions

Interviews and questionnaire responses identified that 'Uterine Contractions' were an important sign of labour and labour progress, with progression of contractions identified as a feature of escalating labour. Progression of contractions was described as a reduction in interval, with an associated increase in intensity and duration;

presented in the order of importance attributed from the data. Midwives can directly assess the characteristics of uterine contractions by palpating them through the maternal abdominal wall, but maternal reaction and interpretation is another indirect way of evaluating uterine contractions. Indirect evidence is available in verbal histories of escalating contractions provided by women during telephone consultation prior to admission, reported during admission interview by women and their relatives, observing the impact of contractions on maternal activity and reactions in comparison to behaviour in the period between contractions.

Retrospective data from entries in case notes in unit 'A' (including labour record) confirmed findings from interview that uterine contractions are important to midwives. There was a high incidence of recording uterine contractions as contraction interval, strength and duration (Figure 4.2), in written form on the admission sheet and labour record, and in diagrammatic form on the record of labour. With the exception of one case where there was admission and a rapid birth there were multiple records of contraction interval on the admission sheet and labour record. The number of entries for contraction interval was the highest, followed by strength and duration. While it is clear from written record and labour charts that interval entries have been made, it is only possible to distinguish strength from duration in the written record made at the time of admission. This is because strength and duration are combined as diagrammatic entry and it is not clear how this should be interpreted. According to one interviewee [IA10] (see Appendix 2: Table with Respondent Codes) entries should reflect a combination of strength and duration using prescribed variable density, but midwives do not complete this entry correctly or on the whole spend little time measuring duration. Midwives do not palpate contractions for long periods and this is supported by the observation phase in unit 'A' where palpation was observed and where information about contractions was reported in hand over (of care) at change of shift. As a result diagrammatic entries on the labour record have been interpreted as strength estimations, although it is recognised that this is in conflict with instructions provided by Bennett and Brown (1999, p 407). Very few case notes had written records of contraction duration, but this may be underestimated because of the interpretation (Figure 4.2).

Figure 4.2: Client labour records of contractions as interval, strength and duration.

Records of contractions	Interval (number of clients)	Interval (entries in records)	Strength (number of clients)	Strength (entries in records)	Duration (number of clients)	Duration (entries in records)
None	(1)		(1)		(1)	
1 Recording	9	9	7	7	7	7
2 Recordings	7	14	10	20	0	0
3 Recordings	6	18	7	21	1	3
4 recordings	6	24	2	8	0	0
Total	28	65	26	56	8	10

During observation of clinical assessment in unit 'A' the six midwives involved recorded 'Uterine Contractions' on the partogram in terms of duration and strength. Four of the midwives were also observed palpating contractions for several minutes [OA1, OA2, OA5, OA7] at the time of initial assessment on admission to the labour ward and during labour, particularly when clients were approaching the second stage of labour. At the same time questions were asked about clients' perception of contractions. Two midwives [OA3, OA4] were not observed palpating contractions, however the three clients [C3, C4, C5] were observed in advanced labour when clients reactions provide an indirect, if less accurate indication of contraction interval and strength. In addition one midwife [OA3] providing care (at different times) for two of the women [C3, C5] seemed to be focussed on administering intramuscular analgaesia and getting ready for the imminent delivery, and another midwife [OA4] was responding to fetal bradycardia (Appendix 2: Table with Respondent Codes).

The importance of progression of contractions as a feature of escalating labour was apparent in the questions asked by three midwives [OA1, OA2, OA6] in response to client's reactions to pain and pressure, and the care response provoked in the midwife by escalating contractions experienced by one client who was admitted in advanced labour [C4 /OA4]. However, with two clients [C 3, C5] progression of contractions, accompanied by extreme changes in behaviour, did not seem to be promptly registered in a response to care from the midwife providing care [OA3]. Results from questionnaires incorporate a description of contractions when midwives are justifying a diagnosis in labour vignettes.

Relationship of the Fetus to the Maternal Pelvis:

When assessing progress midwives can develop an appreciation of the process by determining the relationship of the fetus to the maternal pelvis during examination and palpation of the maternal abdomen. This is expressed as lie, presentation, attitude (degree of flexion), position and level of the presenting part (fetal head) that remains palpable above the pelvic brim that is used to determine the degree of descent. During interview most (12/15) of the respondents from unit 'A' and all from unit 'B' (4/4) said that when assessing labour progress they identified 'Descent of Fetal Head', and just over half identified that measurements are in 5ths of the fetal head palpated abdominally using either bimanual examination, Pawlix grip or both.

During observation I was able to witness on three occasions that descent of the fetal head was assessed using abdominal palpation when clients were admitted in labour [C2, C4, C5]. I found evidence in the client records that this had also been carried out with the other observation cases at the time of admission. However, none of the cases that were observed were palpated again or had entries for repeat assessments in the labour record. Descent of the head can also be visualised by observing the perineum for displacement during the expulsive phase and interviewees who described the second stage referred to this sign, in the six cases where I observed the expulsive phases midwives looked for this sign and several questionnaire respondents wanted this information to confirm their provisional diagnosis of transition or second stage in respect of Vignette 1 (Appendix 9).

Two thirds of interviewees identified 'Fetal Position' as progress, linked to rotation and flexion, and important for optimum fetal positioning. This is diagnosed on palpation, on admission and must be determined to auscultate the fetal heart using a stethoscope. I observed that 'Fetal Position' was diagnosed on admission when clients were in labour. In most cases the position identified in the original diagnosis was confirmed at the time of delivery by the position of the occipital protuberance at emergence and at restitution of the fetal head. However it is probable that the positions identified for two cases [C6, C7] were not correct.

In one case [C6] the position of the fetus was diagnosed as Right Occipito Anterior (ROA¹⁷) on admission. However, there were indications that a posterior position of the occiput was more likely:

'During the pushing phase I noticed a dip in the abdominal wall below the umbilicus [common with occipito posterior position] that disappeared later. When the fetal head restituted after it emerged, in order to align with the fetal shoulders the occiput was on the left. The midwife was certain that the original position of the occiput was on the right and it is possible that it may have rotated from ROP¹⁸ to LOA¹⁹, ... during the labour, but it is probable that the original position was LOP and it rotated to LOA.' [C6: 36-41]

This would explain the fairly long second stage of labour for a 'multigravida' (1hr 17mins). In the second case the:

'.. client had a relatively rapid labour despite the fact that the fetal position was occipito posterior throughout and the delivery was a Persistent Occipito Posterior. She coped well with contractions despite early SROM²⁰ [often indicative of difficult labour with malposition or malpresentation]. On abdominal palpation when she was admitted the fetal position was identified as OA²¹. A full palpation was not repeated during labour, although the contractions were palpated and [the] fetal heart [was] auscultated. Vaginal examinations did not provide contradictory information, and also confirmed the probability of an OA position because of the extent of cervical dilatation on first examination, combined with the client's ability to deal with discomfort. The picture presented was one of an easy labour. There were indications from abdominal inspection and the position of the fetal heart that the occiput was posterior, but at the time I observed this the midwife was distracted by and dealing with sudden fetal bradycardia. This seems to be a case of selective inattention to factors that do not fit with the view adopted for the case, that of a straightforward labour.' [C 7: 110-122]

'.. the client was reporting occasional rectal pressure. This could be explained by increasing descent of the head in transition to the second stage, but premature pushing urges are [also] found with occipito posterior positions. Interestingly I noticed ... that there was a lot of fetal movement [from limbs] in the left fundal area [seen when the limbs are anterior in posterior positions of the occiput], ... [C 7: 47-53].

In both cases the possible misdiagnosis did not appear to have had a health consequence for mother and baby.

¹⁷ Right Occipito-Anterior position of the denominator (occipital protuberance of the fetal head) in relation to maternal pelvis.

¹⁸ Right Occipito Posterior - occiput on right side of the posterior part of the maternal pelvis.

¹⁹ Left Occipito Anterior - occiput on the left side of the anterior part of the maternal pelvis.

²⁰ Spontaneous Rupture of [Fetal] Membranes

²¹ Occipito-Anterior - occiput directly anterior.

Despite the importance attributed to flexion, position and descent during interview, observation did not reinforce that these indicators were used after initial progress assessment; other than feeling uterine contractions abdominal palpation was not observed after clients were admitted. The observation that abdominal palpation is used infrequently is supported by findings from retrospective data collection from client records. Of those women in the sample whose case notes had recordings from palpation most (18) had one entry, generally at the time when women were admitted in labour. There were frequent examples (8) of cases where no palpations were recorded, and few cases (3) where two recordings (2) or three recordings (1) had been made (Figure 4.3). Results from questionnaires demonstrate that midwives do consider information on descent important, and information on position slightly less so.

Figure 4.3: Recordings for Abdominal Palpations in Case Notes

Abdominal Palpations recorded	Primipara	Multipara	Total Multipara and Primipara	Total recordings for Group
None	(3)	(5)	(8)	(8)
1 Recording	5	13	18	18
2 Recordings	1	1	2	4
3 Recordings	1	0	1	3
Total	-	-	21	25

Fewer midwives who were interviewed referred to the attitude of the fetus (flexion) than other signs and it was less frequently identified in questionnaire responses. In addition two midwives from unit 'B' volunteered that they were unable to assess attitude [IB16, IB18]. This is more likely to be the case when midwives do not report using bimanual examination of the fetal head.

Fetal Condition

Most interviewees (12) identified 'Fetal Condition' in relation to labour progress. Although this is not a sign of progress it is required as justification for the status of labour to remain in a low risk category. Fetal heart sounds are investigated intermittently using a fetal stethoscope (Pinnard) or a doptone and continuously electronic fetal heart rate monitoring on admission. Guidelines of unit 'A' recommend a 30-minute electronic fetal heart rate recording on admission and this may be preferred practice in the unit, as evidence from the printout is always requested during retrospective risk assessment of cases. Midwives tended to use electronic monitoring

on admission although they reported that they were flexible if a client objected. For example, if the abdominal belt that secures the lead is uncomfortable the duration of the procedure was reduced if the fetal heart was normal. Midwives have biases about fetal heart assessment and are sometimes very critical of continuous electronic monitoring during labour without a specific indication, and either report that they dislike using the fetal stethoscope or prefer it to electronic methods of checking the fetal heart. Results from questionnaires demonstrate differences between the units in requirements for them to follow a protocol or a policy for continuous fetal heart rate monitoring. While three quarters of respondents from unit 'B' and almost all of respondents from unit 'C' disagreed they were expected to follow a protocol, more than half from unit 'A' (13/21) agreed that they were expected to.

During the observation phase of the research the 'Fetal Condition' was always assessed using electronic continuous monitoring for 30 minutes on admission and then auscultation every 15 minutes (5 minutes in the second stage). Frequent use of electronic monitoring was confirmed from retrospective data in case records. When fetal heart assessment was not completely normal in three of the cases that were observed midwives reverted to continuous electronic monitoring [C1, C4, C7]. Meconium stained amniotic fluid is also an indication of fetal distress. On one occasion when fetal bradycardia was diagnosed artificial rupture of membranes was carried out to see if meconium staining was present (and to accelerate labour and expedite delivery).

Maternal Condition and Responses to Labour

This represents general physiological parameters associated with well-being and observable changes in maternal reaction and coping that are sometimes expressed verbally, in non-verbal sounds and breathing noises and in changes to posture and movement. Maternal condition is related to well-being and this is observed in maternal behaviour and reaction to labour that can be used to guide care, particularly in relation to dealing with pain by providing advice, support and analgesia. It was confirmed by observation that midwives assess 'Maternal Condition' with a full clinical examination on admission that incorporates physiological observations (i.e. temperature, pulse, respirations, blood pressure and urinalysis) and repeat this at intervals throughout

labour. Questionnaire response to Vignette 4 confirmed that midwives consider maternal and fetal well-being when making a diagnosis and when deciding on management of the labour (Appendix 9). Maternal reactions in the early stages of labour seem to provoke caring directed towards attending to clients comfort and administering analgaesia, while in the late stages of labour they also provoke preparation for delivery responses.

Two thirds of midwives that were interviewed referred to 'pain' assessment as a diagnostic of labour. It was observed that pain assessment was used as a diagnostic of labour to a varying extent. Not all women in labour need analgaesia but most require some form of pain management such as distraction, warm baths, mobilisation, and Entonox (self administered inhalation of 50% Nitrous Oxide and 50% Oxygen). Intramuscular analgaesia such as Pethidine and Morphine are required by most 'primigravida'. Respondents who were interviewed said that they administered analgaesia according to the stage of labour (2) or according to client need (4). Interestingly one respondent does not need to use intra muscular analgaesia for home births. All of the women I observed used self-administered Entonox from the time of admission to the labour ward for the duration of labour. All but three women [C1, C 4, C5] also had intramuscular Pethidine or Morphine administered. Those who did not have an injection were multiparous and two of these were admitted in advanced labour.

Just less than half of interviewees (8) considered that maternal posture is an indicator of progress. Posture is related to pain and pressure symptoms and may affect normal activities. Changes to posture can be seen particularly when the woman is walking or kneeling during a contraction.

Several interviewees (7) and questionnaire respondents thought that breathing noises were useful in assessment as an indication of maternal response to the strength of contractions and pressure from the descending head once the cervix is dilated. In advanced labour this is expressed as 'puffing', 'panting' and 'grunts' and strong contractions can influence vocalisation audible on the telephone when clients telephone

a midwife for advice about labour or to negotiate access to midwifery care. All but one [OA3] of the midwives observed seemed to respond to breathing noises as an indication of maternal response to the strength of contractions and pressure when labour was advanced although they did not make a record of this. Midwives were observed requesting that women should come to the telephone and talk each time there was an enquiry about labour or when considering coming into hospital. One interviewee was clear that as well as reassuring the woman directly she used this opportunity to listen for maternal reactions to contractions, to gauge the interval and the impact on communication and breathing. Midwives were not observed to rely on breathing noises and avoid vaginal examination when breathing was characteristic of 'heavy' labour unless changes in breathing followed recent routine vaginal examination. In one case [EC3] the midwife [OA3] confirmed second stage by performing a vaginal examination about 15 minutes after the last examination. This response may reflect inexperience as questionnaire respondents used the 'grunting' noises described in Vignette 1 as a justification for diagnosing transition or the second stage of labour.

Recognising maternal response to labour as an indicator of progress was observed in the reaction of a G grade midwife [OA2] who observed two women walking down the corridor towards the midwives station. She directed these women - who she knew to be 'multigravida' from their pregnancy records - directly to the delivery room and bypassing the room in which new admissions are generally examined. One midwife allocated to care for one of the women seemed to recognise the reactions of the woman she was greeting as signs of advanced labour as she provided assistance and organised her delivery trolley [OA4]. However, there was little indication that the midwife allocated to care for a second women recognised the significance of the maternal response to contractions and what was soon confirmed to be advanced labour [OA3].

History of Labour

The previous descriptions are of information gained at the time that midwives are caring for women in labour. Midwives also collect information about past pregnancies, current pregnancy, past labours and current labour from case records and from information provided by the woman or her family. To an extent midwives are dependant

upon other peoples record keeping and communication skills in obtaining a history. The importance of history is emphasised in interviews and midwives were observed spending time talking with women and asking questions during admission and scrutinising case records. Women and their relatives were forthcoming about experiences of previous birth and birth experienced by relatives. In particular one mother volunteered that she also had experienced an occipito posterior position in one of her labours and because of this she was concerned for her daughter, who was experiencing a labour with the fetal occiput in the posterior position [C2].

The records that midwives make during labour care and their recollections of the developments form a history of an individual labour. This history seems to influence further information gathering. Questionnaire respondents included information on the trajectory of labour in their diagnoses, to identify escalating labour (Vignettes 1 & 3), to compare previous with present symptoms (Vignette 2) and to explain developments and identify significant information from the community midwives record of labour (Vignette 4) (Appendix 9).

Midwives appear to make use of external signs in combination. For example changes in maternal reaction that indicate advanced labour were frequently observed to follow with visualisation of the perineal area by the midwife. This was considered essential in responses to Vignette 1 to confirm maternal responses that reflected advanced labour.

None of the midwives interviewed suggested that maternal reactions were used in preference to clinical assessment and this was not observed. However, one midwife reported a case where it was not possible to carry out a clinical assessment, where maternal responses to labour had to be used because of non-compliance by the woman in labour:

'I know she was progressing well in labour because of her regularity of contractions, and the strength of contractions. That and her reactions to the contractions. And I couldn't really do an abdominal palpation, I couldn't do anything to this one ...She just was completely out of control. She never stood still long enough for you even to speak to her. She paced up and down and when she got contractions she banged her head (laughter). That was it. Eventually we persuaded her to let us listen to the fetal heart so we would get a doptone and get it on the abdomen. You would hear 'B dump, b dump' and she would

swipe it off, and that was it. That was it. ...So she paced and paced and I know she was progressing. I knew because there was heavy show, em there was her reaction. The contractions never varied and she progressed. She did very well.' [IA2 2: 322-348]

This quotation is a good example of a midwife interpreting extreme maternal reactions to gain an understanding of the physiological processes.

Internal Signs

Midwives obtain internal signs when they investigate using vaginal examination within their clinical examination. Midwives reported during interviews that they use this investigation at regular interval and during field study this was confirmed during observation of the assessment process and by examining prospective and retrospective labour records. There is a tendency for midwives to identify that the procedure is required without necessarily specifying the internal signs that will be 'looked for'. For example in questionnaire responses to vignettes nine of the fifty-three occasions where a vaginal examination was considered important did not specify which signs should be looked for; even when specifically asked to indicate essential information. As well as internal signs indicating degrees of progress with the labour vaginal examinations can also confirm that there are no problems, for example that the relationship between the fetus and maternal pelvis is normal. As in the case of an abdominal examination that is carried out in totality and the various information identified for its relevance and used to determine progress and confirm a normal set of circumstances, a similar approach is used when carrying out vaginal examinations. In contrast to interviews where respondents were encouraged to identify the signs of progress for relevance and observation where what was recorded for particular cases was extracted as data, questionnaires requested information on signs (information) that midwives considered essential in specific clinical situations that were presented in vignettes (Appendix 9).

Cervical dilatation

About one third of interviewees described dilatation of the cervix and in the observation phase all of the respondents made a record of cervical dilatation in client labour records. This was also the case with secondary data from client records. Responses to questionnaire vignettes (1, 2 & 4) included 12 references to dilatation and

a further 26 responses where dilatation is the basis for the classification of labour identified: established labour, progress, onset, or indicating that the cervix would need to be examined (cervix). Interviewees identified that the Os²² of the cervix is slightly more open in the case of a 'multigravida' [multips Os] before the onset of labour. This places dilatation in a context of parity, which midwives need to consider when making assessments.

Cervical effacement

About one third of interviewees and most labour records also described effacement of the cervix (shortening and thinning), consistency (softness) and application (proximity of the cervix to the presenting part). However, effacement of the cervix was identified only once in questionnaire responses. Figure 4.4 explains the physiological changes in the cervix during labour.

Figure 4.4: Explaining changes in the cervix

Three centimetres dilatation of the Os of the cervix is considered to be established labour and is the phase where accelerated dilatation is expected. Before this clients in unit 'A' are identified as being in the latent phase of labour. Effacement of the cervix generally precedes dilatation of the cervix in a primigravid uterus but not necessarily in a multigravid uterus where the two processes are often simultaneous. A soft cervix will generally efface and dilate more quickly than a firm resistant cervix. A cervix that is well applied to the presenting part will be dilated more effectively during contractions. A poorly applied cervix is an indication of a fetal head that is high in the pelvis that is a malpresentation or malposition when labour has commenced. The relationship of the fetal presenting part to the maternal pelvis as station, presentation and position is determined to diagnose the above.

Position of Os

The position of the cervix was reported on two occasions in labour records. This was in relation to a malposition of the fetal head that is associated with uneven dilatation as a result of the direction of fetal axis pressure in the cervix.

Station of the Presenting Part

Station of the fetal head in relation to ischial spines was recorded in client labour records following vaginal examination. However, this sign was identified on only three

²² Os - the opening of the cervix.

occasions as station and a further five occasions as descent or to exclude arrest (of the fetal head) in responses to vignettes. Not surprisingly on five occasions this was in respect of Vignette 4, where failure to progress was accountable for the external signs that were described.

Presentation and Position

Information about the relationship of the fetus to the maternal pelvis is described by interviewees in terms of presentation and fetal position identified by landmarks. In addition ten questionnaire respondents considered information on presentation and position important. In contrast, fetal position was only described in prospective client records on two occasions and there was only one reference to a landmark on the fetal skull.

Fetal Membranes

The presence or absence of fetal membranes was identified in labour records and was also identified on two occasions in response to Vignette 4. In this situation the presence of fetal membranes may provide the potential to intervene in the labour by performing artificial rupture of membranes.

There was less representation of some internal signs, which were only present in questionnaire responses: flexion (1), moulding of the fetal skull (2) and caput succedaneum (2). In each case these were identified in relation to Vignette 4.

Responses from questionnaires provide the type of information that midwives considered important to confirm their diagnoses in respect of each of Vignettes 1, 2 and 4. In each Vignette a midwife was in attendance. Midwives provided reasons for carrying out a vaginal examination or provided the specific internal sign that they considered relevant (Figure 4.5).

One interviewee stated the importance of always listening to the fetal heart after a vaginal examination. She also described a mnemonic she uses to describe internal findings; EDAM: Effacement, Dilatation, Application, and Membranes.

Figure 4.5: Essential Internal Signs for Vignettes (1, 2 and 4)

Vignette	1	2	4	Total	
Vaginal Examinations	11	14	28	53	
No specific indicators	2	4	3	9	
Cervical dilatation	4	4	12		
Established labour/Cervix/progress/onset		2	5	11	38
Cervical effacement	0	0	1	1	
Position of Os	0	0	0	0	
Presentation and position	3	0	7	10	
Station of PP	1	0	2		
Descent/Exclude arrest			1	4	8
Fetal Membranes			2	2	
Flexion				1	1
Fetal skull - Moulding				2	2
Fetal skull - caput				2	2

Rather than emphasising internal signs of progress midwives tend to focus on the situations where vaginal examination may be used. Nearly all interview respondents provided information about the situations where they would undertake a vaginal examination to ascertain 'Internal Signs' of progress. However, labour records of the observation cases were not specific about the justification for this investigation other than assessing progress, perhaps because vaginal examination is carried out in such a routine way. Without a need to justify using vaginal examination midwives either do not seem to focus on the information that they need, or they assume that everyone understands how measures of progress are assessed and how potential problems with labour are identified or excluded. Observing the practice I was sometimes aware of a reason for carrying out an examination other than following a routine of assessment, although I did not observe specific indications stated in case notes or explained to clients. The reasons provided by interviewees have been compared with reasons for carrying out seventeen vaginal examinations performed on the seven women in the observation phase.

One interviewee said vaginal examinations were performed to find out if clients are in labour and more than half (9) said it was used as part of a routine assessment process where vaginal examination is used on admission and every 4-6 hours. Observation revealed that more than half (11) of vaginal examinations were carried out routinely [C1 / OA1, C2, OA2, OA2 / OA2, C 2 / OA2, C4 / OA4, C5 / OA3, OA6 / OA5, C 7/ OA6,

C1 / OA1, C 2 / OA1, C 6 / OA5], and in two cases this was associated with artificial rupture of membranes [C 2 / OA2, C 6 / OA5] in the absence of clinical indications.

Figure 4.6: Incidence of Vaginal Examinations from case Note Records

Vaginal Examination by order		Number of Women	Primipara	Multipara	Total for Group
None	Admitted in advanced labour	1	0	(1)	0
1 st VE	<ul style="list-style-type: none"> on admission - 25 1 hour after admission - 1 	28	11 100%	17 94%	28 97%
2 nd VE		20	9 81%	11 61%	20 69%
3 rd VE		11	5 46%	6 33%	11 38%
4 th VE		7	4 35%	3 17%	7 24%
			29	37	66

Retrospective data from case notes and labour records (29) from unit 'A' provide a record of the incidence of vaginal examinations (Figure 4.6). One woman did not have a vaginal examination and the majority had between one and four. The whole group had a total of sixty-six vaginal examinations. There were eighteen 'multipara' in the sample (one did not have a vaginal examination) and eleven 'primigravida'. The group of multipara had total of thirty-seven vaginal examinations and the group of 'primigravida' had a total of twenty nine.

Indications for carrying out vaginal examination, that were provided in labour records (unit 'A') are described in relation to the sequence of vagina examination in the following section.

Reasons Provided for Performing Vaginal Examinations.

First Vaginal Examination

Of the twenty-nine women twenty-seven had a vaginal examination on first contact with a midwife as part of the first labour assessment. One of the women did not have a vaginal examination on admission as she was experiencing rectal pressure [CC 8], a sign of transition to the second stage, and another woman [CC 18] had a vaginal examination 1 hour after admission to assess progress in relation to pain relief.

Midwives justified most of the vaginal examinations as assessment of progress in relation to decisions about admission or analgesia. However, in two cases [CC 11, CC1] at the time of examination there were irregular uterine contractions, generally not acceptable for a diagnosis of labour. In six other cases [CC 5, CC17, CC19, CC3, CC5, CC7] there was evidence of spontaneous rupture of membranes accompanied by contractions. These two signs occurring together are generally accepted as sufficient evidence with which to diagnose labour. One of these clients wanted epidural analgesia [CC 19] and this influenced the decision to carry out a vaginal examination, however, she progressed rapidly and the epidural was not administered. In two cases no reason was given for the vaginal examination (CC 6, 13] and in another case [CC 20] the reason is unclear as the client is reported to have refused to agree to a vaginal examination and was not coping with labour. Three vaginal examinations were carried out in the clients home (planned home births) [CC 3, 4, 16] to diagnose labour [CC 3,4] and inform the second midwife to attend for the delivery [CC 16].

Second Vaginal Examination

Twenty of the twenty-nine women had a second vaginal examination. Progress assessment was given as the reason in thirteen cases [CC 1, 3, 4, 5, 14, 15, 17, C1, C2, C3, C4, C6, C7] that was also linked with a need for analgesia (3) [CC 1, C6, C7], requesting the attendance of a second midwife at a home birth [CC 4], assuming responsibility for a case [CC 14], discharging a client from the labour ward who was not in established labour [CC2], possible problems with fetal well-being (2) [CC 21, C4], associated with artificial rupture of membranes (4), either responding to a client's request for artificial rupture of membranes and analgesia [CC 2, C6] to rupture bulging membranes visible at the introitus just prior to delivery [CC 7] and in a case of fetal distress [C4]. In three cases vaginal examination was linked to preparing for delivery or providing guidance for women about the commencement of the second stage, and in 4 cases it was used to confirm full dilatation [CC 16, C1, C3, C7].

Third Vaginal Examination

Eleven of the twenty nine women had a third vaginal examination and in ten cases reasons were provided for this, related to managing pain (4) [CC 1, 2, 5, C2], routine

assessment of progress (3): to diagnose delay in labour after 20 hours of labour for a planned home birth who was transferred to hospital [CC 4], to attach a fetal scalp electrode where the fetal heart was irregular [CC 15] and to carry out an artificial rupture of membranes because pushing efforts were ineffective [C1].

Fourth Vaginal Examination

Seven of the twenty nine women had a fourth vaginal examination. One was carried out by the doctor on referral to hospital [C 4], one was carried out to push back a lip of cervix [C1] and one in relation to fetal heart decelerations [CC 13] in all likelihood to see if the cervix was fully dilated. The remainder were to assess dilatation when clients reported or displayed an urge to push (3) [CC 15, 21, C2] or pushing was ineffective.

Looking at the indications for carrying out vaginal examination written in case notes has identified fourteen examinations that seem to be justifiable on clinical grounds. This can be contrasted with three quarters of vaginal examinations recorded in the case notes that appear to have been carried out as a routine, or linked to analgesia administration.

The frequency that vaginal examination was performed on the twenty-nine women in the case note sample was compared to a calculated frequency, based on a schedules of active management of labour (every 4 hours with an additional one included for onset assessment)(Thornton, 1996). The observed frequency (66) for the sample was slightly less (6 examinations) than the expected frequency for the sample (72) with a regime of active management. Most individual women (14) experienced the number that was expected, six had more and nine had less than expected.

When an expectant management approach is adopted the need for and frequency of vaginal examination reflects case specific events that determine and justify the way individual midwives resort to vaginal examination. It is difficult to predict a number of vaginal examinations that would be carried out when using expectant management although the frequency would be expected to be less than with active management as routine four hourly examinations would be avoided.

The Effect of Parity

Of the women in the case note sample eighteen were 'multigravida' and eleven were 'primigravida'. The total number of vaginal examinations performed on 'multigravida' was thirty-seven and this is equal to the expected number with active management of labour (formula: four-hourly vaginal examinations, plus an extra one on admission). This demonstrates that the group of 'multigravida' had the number of vaginal examinations expected for active management.

Eleven of the women were 'primigravida' and the total number of vaginal examination's carried out on this group was twenty-nine. When the formula reflecting active management (every 4 hours plus an extra one for admission), is compared with the length of labour to calculate the frequency of vaginal examinations for this group, the result is thirty-four. This means that the group of 'primigravida' have five less vaginal examinations than expected.

Multigravida in the sample had labours of shorter duration (1hr 45 min - 11hr 10 min) with the exception of one 'multigravida' who had a 23hour 40 minutes duration, compared with primigravid labours of longer duration (4hr 50 min - 20 hr). All but one woman (a 'multigravida') had a vaginal examination on admission and one 'primigravida' had three vaginal examinations associated with admission. Five 'multigravida' completed labour within 4 hours of commencement, six more 'multigravida' delivered within 5 hours and one 'primigravida' had a labour duration recorded of only 4 hours and 50 minutes. Despite the short duration of labour all but one women was subjected to vaginal examination(s).

More than one third of the women in the sample who experienced labour that lasted less than 5 hours had a routine vaginal examination. It is possible that if vaginal examinations had not been carried out routinely on admission these women may not have had a vaginal examination for the duration of their labour. However, two 'multigravida' were described as distressed and in these cases vaginal examination may have been

linked to pain management, as both were administered Pethidine by intramuscular injection.

Results from observation and case note entries indicate that midwives in unit 'A' focus their clinical examination to a greater extent on gathering information about uterine contractions, cervical dilatation, station and fetal condition. More assessment activity is directed towards vaginal examination than abdominal examination and palpation, even though clients are low risk and suitable for expectant management of labour. This finding is supported by data from interviews, where the majority of midwives describe routine vaginal examination. However, questionnaire responses to vignettes provide a different result. As for normal cases only a minority of midwives need information from vaginal examination to confirm their diagnoses. When this was the case information on dilatation of the cervix was required. More respondents identified that if signs of the second stage of labour were not visible (Vignette 1) (Appendix 9) a vaginal examination would be required. Interestingly in response to Vignettes 2 and 4 (Appendix 9), information from abdominal palpation was identified by about half of the respondents.

Midwives could use information from abdominal examination and palpation as an alternative to routine vaginal examination in many cases. Interview responses indicate that palpation is an important part of progress assessment in units 'A' and 'B' and questionnaire responses from the vignettes support this while observation and retrospective labour records do not. It is generally accepted that abdominal palpation will precede each vaginal assessment. In addition when active management of labour is specified, entries on the partogram (unit 'A') require an entry for dilatation of the cervix and descent of the presenting part (in fifths palpable). Although the frequency of abdominal examinations are not specified, it seems reasonable to assume that when vaginal examinations are not carried out routinely (every 4 hours) alternative information from abdominal palpation will be required. According to McCormick (2003, p 445) 'abdominal examination may be repeated at intervals in order to assess descent of the head.' These findings are compared with 'observations made on admission [that] form the baseline for those carried out throughout labour.' It would be reasonable to

assume that with active management the number of abdominal examinations would at least equal the number of vaginal examinations, and exceed them if expectant management is being used. In contrast the data from case notes demonstrates less frequent entries for information available from palpation (25) than entries of information from vaginal examination (66). Abdominal examination and palpation has a frequency of one third of that of vaginal examination, even though the current view is that 'A vaginal examination should always be preceded by an abdominal examination...' (McCormick, 2003, p445).

Less frequent entries for abdominal palpation in case notes could be explained by failure to record results of the examinations, but observation does not support this. On the contrary, abdominal palpation was not repeated following admission assessment, while vaginal examinations, contractions and fetal heart assessments were carried out routinely and recorded. Of the midwives interviewed who provided information on 'Information Gathering', few either base their assessment on the need for care or the need to determine care using vaginal examination as required and most carry out assessment including vaginal examination in a routine way. Questionnaire responses mostly agree (35/52) that midwives are required to follow a policy or protocol that specifies regular assessment of cervical dilatation. There are differences between units 'A' (13/21), 'B' (13/15) and 'C' (9/16). Similar results are provided for regular assessment of the station of the presenting part and diagnosis of labour based on contractions, cervical changes or spontaneous rupture of membranes. That most midwives from unit 'B' agree reflects a policy where low risk women are actively managed and not recognised as midwifery cases. However in units 'A' and 'C' low risk cases are acknowledged as midwifery cases. Despite routine vaginal examination there was little emphasis on locating landmarks on the fetal head to determine fetal position during the observation phase, instead emphasis was placed on consistency and dilatation of the cervix, station of the head and presence of fetal membranes. According to Bennett and Brown (1989) fetal position, moulding and pelvic capacity should also be recorded.

The focus of observed and recorded 'Information Gathering' on uterine contractions, cervical consistency and dilatation, station of the head and fetal condition; together with the frequency of vaginal examinations indicates that 'Information Gathering' strategies reflect active management of labour. Data from interviews supports this assumption for most midwives, while data from questionnaire Vignettes show that for normal cases few midwives need to use information from vaginal examination to diagnose labour and labour progress (from Vignettes). However, the requirement to complete a graph of cervical dilatation was confirmed by questionnaire results (48/52) from units 'A' (20/21), 'B' (13/15) and 'C' (15/16), and the requirement to inform doctors about progress, was not confirmed, as most (46/52) disagreed that they must keep medical staff informed on the progress of women in normal labour. Interestingly interviews from unit 'B' report that medical staff are more involved in the progress of labouring women:

'... a registrar knocked on the door, came straight in,... I'm in charge this afternoon ... Hello. ... I've just come in to see ... I just need a partogram to write in the notes..' [IB18: 461-472]

'Medical staff will ask for progress reports.' [QB 12]

In contrast with the perceived lack of involvement of the medical staff most (44/52) consider that the midwife in charge expects to be kept informed of the progress of all labouring women.

'The G grade expects a regular handover of 'progress' i.e. finding on a 4 hourly VE.' [QA 20]

ii) Information Processing

This reflects the cognitive process of comparing and prioritising information during the assessment process when attempting to diagnose labour onset or progressive physiology. Assessment forms the basis of maternal care and ensures that maternal and fetal health and labour physiology are observed carefully to avoid or diagnose problems. Having processed information it is possible to arrive at a diagnosis or to identify that more information is required to either make a diagnosis or substantiate a tentative

hypothesis. Information processing is concerned with weighing information, handling uncertainty about labour trajectory and arriving at a diagnosis upon which to base midwifery care.

Information Weighing

In the same way that individual midwives demonstrate greater emphasis in collecting different types of information, midwives may exhibit differences when it comes to recognising the relative importance of information. Some may place little emphasis upon information that is readily available from general observation while others focus upon it extensively. Some midwives may emphasise collection and spotlighting of the type of information that requires investigative procedures that other midwives collect in a less habitual way and to it attribute less authority.

Midwives make use of the signs of progress in ways that are particular to themselves as practitioners and according to the context of a particular case. In situations where midwives are able to determine the approach to assessment for low risk cases routine use of vaginal examination may indicate either a selective use of progress signs or a holistic assessment that requires all available information. The latter is possibly a feature of less experienced midwives who are less confident in their skills of assessment:

'..it [vaginal examination] can .. reinforce what you think you know so, therefore, do you get to the point over .. time [where] you are able to recognise what's going on without the need [for a] vaginal examination.' [IA7: 619-622]

As most of the midwives interviewed in this study are experienced it is probable that routine vaginal examination reflects selective use of particular progress signs. About one third of interviewees suggest that they use vaginal examination to obtain information of internal signs selectively as part of holistic assessment. There were two occasions I observed where vaginal examination may have been part of a holistic clinical assessment related to fetal bradycardia and a premature urge to push [C4/OA4, C7/OA7].

Data from interview suggests that most midwives have adopted a routine to labour assessment and undertake vaginal examinations even though they seem to have skills and knowledge that could be used as an alternative in some cases. This alternative knowledge is apparent in questionnaire responses to vignettes in which midwives were required to provide a diagnosis on the basis of information supplied, which did not include information from vaginal examination undertaken within four hours. Almost all of the respondents arrived at a correct diagnosis for vignettes 1, 2 and 3, based upon external signs from maternal reaction to labour and maternal reports and information from previous abdominal palpation (Vignettes 1 & 2).

Undertaking vaginal examination because of a need for more information is often explained by interviewees in relation to client social circumstances and clients wishing more information to manage family situations. However, I did not witness women requesting information of a particular type, although I did observe a relative ask if artificial rupture of membranes would be carried out during the next vaginal examination. This may reflect an acceptance by women of vaginal examination as the definitive source of information on progress. Vaginal examination was also observed being used to confirm the second stage of labour [C3 / OA3] and prior to administering intramuscular analgesia [C3 / OA3].

Information from questionnaires, as responses to Vignettes included indications for carrying out vaginal examinations when required to form a diagnosis based upon information presented in the four Vignettes within the questionnaire, respondents were asked if they required further information if so what this was and to provide justification for needing additional information. In the case of Vignettes 1, 2 and 4 several respondents who required more information (19/52, 29/52, 39/49 respectively) wanted information provided by a vaginal examination (14/19, 15/29, 26/39 respectively). Vignettes 1 and 2 described completely normal situations and Vignette 4 described a case where there was a strong potential for obstructed labour. In the latter case those who wanted further information from vaginal examination wanted to assess progress. Respondents identified types of information they needed: dilatation [of cervix], [fetal] position, station [of the presenting part] / descent [of the fetal

head], moulding [of the fetal skull] and caput [succedaneum]. As Vignettes 1 and 2 presented 'normal' cases quite a few of the rationales referred to confirming the provisional diagnosis especially if there is doubt or signs are ambiguous, prior to administering analgesia, to determine the onset of labour, and if there was fetal bradycardia. One of the respondents who wanted to use a vaginal examination to determine the onset of labour also wanted to be able to use the results as a basis for further assessment. In the responses to Vignette 1, seven respondents suggested that a vaginal examination would be necessary only if external signs of progress did not confirm the second stage of labour.

Contractions, descent of the fetal head and maternal reaction and levels of distress were used to justify diagnoses in each of the normal cases. About half of the respondents wanted further information (Vignettes 1 & 2) from external signs that could be observed or obtained from abdominal palpation. Information required for Vignette 3 was to exclude possible alternative diagnosis and ensure maternal and fetal well-being. Few midwives required a vaginal examination for Vignette 1 (7), although if external signs of the second stage were not apparent a further respondents (7) would then require information from a vaginal examination. Perhaps this is because exaggerated reactions from clients are expected in the second stage of labour but otherwise this is a sign of problems with labour or with client coping. More (15/29) required information from vaginal examination in the case of Vignette 2, where justification was related to confirming labour onset, establishing dilatation for future comparison or in relation to analgesia. Midwives were more likely to rely on external signs for Vignette 1 than Vignette 2. The type of indicator may explain this as visualising bulging of the perineum or visualising the fetal head is evidence that the cervix has dilated completely, and this is an alternative to measuring cervical dilatation. Although midwives in each case refer to indicators from abdominal palpation it seems that vaginal examination is prioritised, particularly as descent of the fetal head (measured on palpation) is more indicative of progress than station (measured on vaginal examination), this supports the emphasis in information weighing on dilatation of the cervix as a measure of progress.

Vignette 4 presents a case that is initially normal but with developments that indicate the possibility of obstructed labour. This is a planned home birth and because of this no vaginal examinations were mentioned in the vignette and no internal Diagnostic Indicators are included in the case description. It is interesting that only seven midwives considered the possibility of mechanical problems (obstructed labour: cephalo-pelvic disproportion, malpresentation, malposition and large baby) and a further nine identified the consequence of this (failure to progress, arrest of the fetal head or decreased uterine activity), and nine midwives identified possible exhaustion and or ketosis. However, almost a half of the midwives (21/49) explained reduced contractions that had lasted for more than one hour as a familiar feature of normal labour, and more than one quarter (14/49) did not require further information. Although this was sometime qualified by waiting an hour to see if contractions resumed and while maternal and fetal condition remained good. Most respondents (39/49) did want further information from abdominal palpation (10) and vaginal examination (26) and information about previous clinical signs (7).

Responses suggest that midwives understand how to use external signs to diagnose labour and progress and that with the exception of a few they do not need information from vaginal examination for normal cases. More than half of the midwives wanted information from vaginal examination for Vignette 4; but more wanted other information including that from abdominal palpation. This was not meant to be a normal case, but as quite a few midwives did not consider the possibility of obstructed labour they therefore did not indicate a need for further information. Perhaps experience of routine vaginal examination in labour has undermined midwives alertness for signs of potential abnormality. This is interesting, as routine vaginal examination has been perceived as a quality assurance measure to ensure abnormality is detected and is accepted as such by some interviewees (IA2). However, active management that relies on restricted criteria of progress is likely to detect the consequences of abnormality as a failure of labour to progress rather than the cause of the failure to progress. Along with psychosocial influences on physiology, mechanical factors such as cephalo pelvic disproportion or malposition can cause problems and delay in labour. The potential for these situations to present in labour makes it necessary for midwives to use a more

holistic examination that relies on broader skills and criteria than those that seem to be adopted when an active management style of assessment is used. Therefore, an active management style of assessment that focuses on restricted criteria of progress, in particular using routine vaginal examination is an ineffective approach for midwives to use when caring for women who are experiencing a normal birth process and it does not in itself reduce risk (IA7).

While most of the respondents to the questionnaires appear to diagnose confidently without requiring information in the form of internal Diagnostic Indicators for normal cases, in contrast all of the midwives in the process of caring for women on unit 'A' were observed carrying out routine vaginal examination. When the admission process was observed vaginal examination was integrated within a comprehensive assessment of the health of the client and fetus and the status of the labour. With expectant management a provisional diagnosis is possible following an initial assessment involving client information and responses and clinical examination that incorporates abdominal inspection and palpation. Responses to vignettes indicate that midwives are able to diagnose using this information. If necessary when signs are unclear or potential problems are detected there may be justification for vaginal examination. More than half of the interviewees suggested that findings are compared with other information obtained from external signs, most often to confirm a provisional diagnosis or sometimes contrast with a provisional diagnosis.

Midwives were not observed recording findings from abdominal examination prior to performing a vaginal examination, and this would be expected if it were other than routine. In addition when the admission process was not observed it was clear from case records that midwives did not delay carrying out a vaginal examination. There was no evidence from observation that a provisional diagnosis was developed prior to vaginal examination as a diagnosis of labour or progress was not recorded until after each vaginal examination. When clients had subsequent vaginal examinations none of the midwives were observed carrying out an abdominal examination before-hand and there was no record of this being done in the cases where I did not observe the examination.

Obstetricians share the view that abdominal examination should precede vaginal examination:

'...perform an abdominal palpation to assess the nature of the contractions, the size of the baby, the position and the degree of engagement of the head, and the attitude, should the head be palpable... Then perform the vaginal assessment... to confirm what was deduced from the abdominal palpation.' (Fay, 2001, p20)

The need to maintain what Fay (2001) refers to as clinical skills in abdominal examination is just as relevant to midwives as it is to obstetricians, and it can be argued that midwives' clinical skills would need to be less reliant upon vaginal examination if they are to provide expectant management.

A combination of evidence was considered important in clinical diagnosis by interviewees (19), which, they interpret as holistic assessment. Holistic assessment seems to be interpreted as using external indicators from abdominal examination, maternal reactions and reporting and internal indicators from vaginal examination. In addition an indirect way of obtaining information is electronic equipment (fetal heart rate, frequency and strength of contractions) and this is considered less reliable than clinical examination. However, in addition to information from electronic fetal heart rate monitors, that were used for all cases, midwives were observed using a combination of evidence such as clinical signs from external examination, symptoms reported by a client and reactions to uterine contractions combined with information from regular vaginal examinations. In general information from vaginal examination appeared to be prioritised in information gathering, information weighing, reporting progress and influencing care. However, questionnaire responses to vignettes provided diagnosis based upon maternal reporting (telephone call), evaluation of reaction and a combination of maternal reaction and information from abdominal examination.

An appreciation of a normal labour trajectory is apparent in interview, questionnaire and observation data, as recognising escalating external signs and symptoms or as a more narrow appreciation of progressive dilatation of the cervix. Although external signs tended to be expressed in documentation on admission and in the second stage of labour. The former appreciation of trajectory is described during interview where midwives compare a client's reaction against experience of other cases or experience of

this particular client to events in pregnancy within a model of expectations for normal labour trajectory that may incorporate an appreciation of the changes linked to parity.

Almost all of the midwives who were interviewed (13) identified that maternal condition was important in progress assessment. This included maternal reactions to labour and contractions, such as reported pressure symptoms and '...legs going stiff' [IO5: 575] that are thought to be signs of the second stage of labour. One midwife identified that such reactions are signs of advanced labour that can be used as an alternative to a vaginal examination to confirm the second stage of labour. Interestingly, questionnaire responses used maternal responses described in vignettes as justification for diagnosis in each case where maternal behaviour was used in the description of advanced labour (Vignette 1) and an early labour telephone consultation (Vignette 3). Advanced labour was diagnosed on the basis of maternal noise, involuntary pushing and signs of maternal distress, while in the early labour diagnosis the client was calm and coping.

An indication of the importance attributed to different types of information is provided in the attention midwives demonstrate in including it in record entries. Uterine contractions, cervical dilatation, the station of the presenting part and fetal heart rate seem to be prioritised in client records and are repeatedly referred to during interviews. Midwives are responsive to clients reactions, well-being and in particular the need for analgesia. Attention is given to location and severity of discomfort with contractions. This is in relation to pain management and also one of the determinants of fetal position that has an influence on labour trajectory. Despite the importance attributed by midwives to individual client's reactions to pain, midwives also emphasised the variation in women's reporting and women's response to pain that reduced the reliability of this as a measure of progress.

Figure 4.7 shows how Diagnostic Indicators of the strength of contractions, directly available to midwives, either visually or using palpation as well as from awareness of maternal reaction and perception, feature in midwives overall evaluation.

Figure 4.7: Evaluating Uterine Contractions

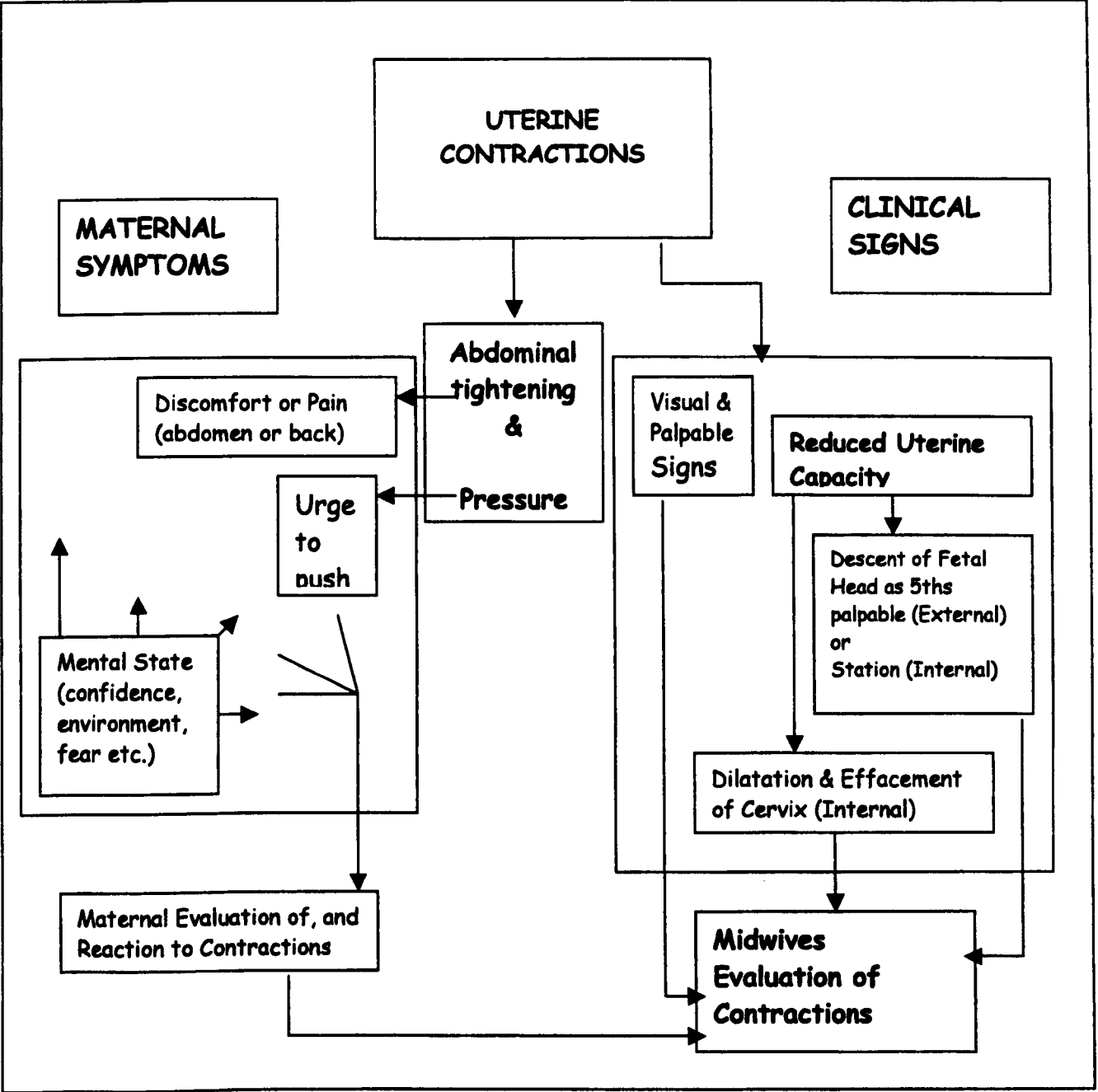


Figure 4.7 shows how Diagnostic Indicators of the strength of contractions, directly available to midwives, either visually or using palpation as well as from awareness of maternal reaction and perception, feature in midwives overall evaluation. Figure 4.7 also shows how the effectiveness of contractions are available from signs during external palpation or visualisation of descent or changing station of the fetal head from vaginal examination as are internal signs of dilatation and effacement of the cervix.

Although fetal presentation, position and descent were assessed by abdominal palpation on admission, no further checks of this were observed and there are no records of this on the labour record. In addition very little attention seems to be given to the position of the fetus on vaginal examination as no fontanelles were palpated and there were only three references to a suture (a landmark on the fetal head). Relative inattention to fetal position may explain why there were two cases with probable misdiagnosis of fetal position. Although fetal malposition frequently has no serious consequence for labour there is a higher potential for problems. However while it is important to diagnose correctly if using expectant management, it seems that vaginal examination is already being incorporated routinely and therefore the potential for slow progress to be diagnosed is increased. However, results from this study provide indications that diagnostic skills are not adequate. This may explain the relative confidence of respondents to questionnaires when they are provided with diagnostic indicators as part of vignettes compared with midwives who were observed caring for women in labour who have to identify these indicators using their own diagnostic skills. It is possible that midwives are not confident to diagnose using external signs because they doubt their skills, because others doubt their skills or because the context of care increases the pressure to be perceived to be accurate.

The observation phase indicates that although information from abdominal palpation is incorporated into early labour assessment, once the admission examination is complete, midwives make greater use of symptoms reported by client. For example, interval and strength of uterine contractions, cervical effacement and dilatation, station of the presenting part and fetal heart measurements. This changes during the second stage of labour when perineal distension and visualising the fetal head can be used as indicators of dilatation and station.

Information Uncertainty

Midwives must learn to process information by weighing various types of information from a variety of sources to arrive at a diagnosis of progress. Any diagnosis will consist of a snapshot along a continuum of labour and will be subject to change because of advances along the labour trajectory due to the physiological process, deviations or

halts due to abnormality. Physiological processes are subject to substantial variations between individuals who are normal. Acceptance of normality is to an extent dependant upon the willingness to recognise that uncertainty is a feature of normal labour. Learning to accommodate uncertainty in assessment of progress is necessary if midwives are to engage in expectant management.

Of the midwives interviewed in units 'A' and 'B' just less than half seemed to deal with uncertainty by recognising it is not always a problem as it may not influence the care that is provided. A midwife may accommodate uncertainty by always expecting the unexpected, which can be interpreted, as being prepared, alert and responsive, in such a case uncertainty is not particularly stressful. Alternatively, expecting the unexpected is related to not understanding what might happen or why, and as a result uncertain situations may represent partial understanding. One midwife who states: '... nothing surprises me. I am always prepared ...' did not convey in her account of a case an understanding of the variation of labour trajectory [IA4: 241-255]:

'... a lady 2 days ago... it was her third pregnancy... she came in previously that morning at 8 O'clock, with a very long, uneffaced cervix. Had gone home. Come back... mid afternoon. She was fully effaced, but still just less than 2 cm dilated. Not uncomfortable at all. But I kept her here ... And as it happened, after about an hour and a half, her waters went, and she just had this volcanic show, and I delivered her half an hour later.'

In this situation an uncertain rate of cervical dilatation, which is more often the case after women have their first child, was not built into the diagnosis. Another of the interviewees thinks that midwives should recognise the potential for labour to be rapid and the importance of listening to women and recognising their instincts about labour:

'... when they do go in [to the hospital labour ward] they're fully dilated, so they probably should've gone in [at the time of] ... the first phone call[to the labour ward for advice on coming in] ... we should know that that can happen.' [IA9: 460-464]

This is about identifying the variability in labour trajectory and clients' variable responses to contractions. However, the previous interviewee [IA4] did not consider, or at least did not think it important to mention either the station of the fetal head, which is ascertained on vaginal examination at the same time as determining dilatation, or descent of the head that is palpated. This is an important sign of progress,

particularly after the first birth when the fetal head usually engages during labour in contrast with first births when this generally happens before the onset of labour.

Observation revealed that midwives needed to make decisions about client care such as location for the stage of labour (home or labour ward), prescribing and administering analgaesia or advising on distraction to deal with discomfort, undertaking labour assessment and categorising findings, and preparing self, client and relatives for the birth of the baby. In undertaking this work the types of potential uncertainty, that were apparent are:

- Knowing if labour has begun or not
- Knowing what the outcome of the labour will be
- Knowing when the labour process will end
- Arriving at a diagnosis and sharing it in records or verbal reports
- Diagnosing potential abnormality with the labour

Each of these areas requires a process of clinical decision-making and there is the potential to get it right or wrong and the potential for the situation to change.

For some midwives who were interviewed uncertainty is problematic and they attempt to reduce this by using all of their diagnostic skills to create as complete a picture as they are able of labour. No assumptions are made about normality unless they have done everything possible to exclude abnormality. Each midwife observed carried out an admission assessment that included vaginal examination, and it can therefore be argued that there is uncertainty about relying upon other clinical skills, or arguing that alternative diagnostic indicators are adequate for low risk cases. Observation revealed that other clinical skills were not fully used to determine external signs of progress while repeat vaginal examination were. Most midwives who were interviewed express uncertainty as a problem for them because other people require specific information about each case. These midwives insist that other peoples information needs are more of a problem than the actual labour, and there is an expectation that they must meet these information needs with more detail than stating that a woman is in labour because of expectations that dilatation is established (measured). Responses in the questionnaire support that midwives are able to accept uncertainty and base diagnosis

of progress on external signs. This suggests it is factors other than diagnosis that result in routine vaginal examinations for all but a few midwives.

If dilatation is not measured at intervals it is unlikely to affect client care unless there are problems with the labour and a case is rapid or prolonged and is subjected to risk management procedures. Defensive record keeping is a possible explanation for conforming to procedures that do not necessarily make a contribution to client care. During vaginal examination it was unusual to observe midwives determining or declaring in the records anything other than the state of the cervix and station of the presenting part. This does not indicate a desire to be thorough, but it may imply a lack of diagnostic skill or confidence to report alternative types of findings. This may be explained by a failure to understand the importance of information from abdominal palpation or vaginal examination about fetal position, descent and attitude, or that specific information is given priority in labour records. Interval and strength of uterine contractions, cervical effacement and dilatation, station of the presenting part and fetal heart rate and rhythm are required for the partogram (labour record) and the 'white board' (labour summary) in the office. Midwives may experience uncertainty if they do not carry out a vaginal examination because of the perceived requirement to provide progress assessment summaries that are based on limited criteria, including cervical dilatation. This focus appears to be associated with a failure to record other information, even though labours were observed [C 2, C5, C 7] where such information might be more important in understanding the care and management required. Interestingly, respondents were able to integrate alternative signs more fully within questionnaire responses. While some midwives may prioritise information required in labour records, especially information from vaginal examination, there are other explanations for this. One midwife who was interviewed describes herself as curious and wanting to know, and wanting to be able to predict (IA2). This particular midwife can provide care without vaginal examination but she uses this investigation routinely, and by the question she asks encourages other midwives to do the same.

While uncertainty is possibly unacceptable to midwives because of their own preferred way of working or because of expectations others have about information it seems that

unwillingness or inability to accommodate uncertainty is associated with routine vaginal examination. Most interviewees do not attempt to accommodate uncertainty and while the policy in unit 'B' prevents this, this is not the case in unit 'A'.

Even for those interviewees who can accept uncertainty about labour trajectory under most circumstances that they would consider normal, there are situations where uncertainty becomes problematic. The types of situations identified by interviewees are presented and these situations are discussed in relation to data from the study.

The situations are:

- a. When there is conflict between clinical signs and extreme maternal reaction
- b. If there is suspicion of abnormality
- c. When anticipated events (in the labour process) do not materialise
- d. Analgesia management is not necessarily a problem with uncertainty
 - Unless analgesia management is linked to dilatation
 - When the need for analgesia seems exaggerated relative to clinical signs
- e. When rapid diagnosis is required for client care or conflicting responsibilities

Questionnaire responses to Vignette 1 suggested if external signs of progress were not visible then a vagina examination should be carried out. This reflects situation 'a' in the above list of indications. When extreme maternal reactions are apparent at intervals it is probable that they coincide with normal uterine contractions and can be differentiated from other potential causes by changes to a calmer state between contractions. As maternal reactions to contractions and descent all exhibit intermittence:

'... it's natural in labour to scream. ... if you broke your leg you'd shout wouldn't you? You'd have a pain in your leg.... The intensity of that pain makes you scream and then it goes off and you have a normal conversation, she's asking for a cup of tea.' [IB17: 756-760]

Intermittence is an important characteristic in differentiating normal labour from alternative pathological conditions such as urinary tract infection, placental abruption or appendicitis.

The pain from uterine contractions was thought by interviewees to produce maternal effects and coping behaviours that are meaningful in diagnosis, if slightly less reliable than clinical examination because maternal reactions can be extreme relative to the strength of contractions, and possibly be influenced by factors such as the pre-labour preparation of the client (Figure 4.7). In addition midwives need to learn to interpret maternal reactions in a context of other information that is available. For example, at the stage of transition women often lose control and plead for help. During observation when one woman having her fourth baby exhibited this type of behaviour she [C 5] grudgingly agreed to have an injection that she did not want and in the end she did not have because there was not time to administer it before external signs of the expulsive phase were obvious and she was giving birth. It appeared as if the midwife [OA3] did not perceive this woman's reactions to pain in a context of escalating labour and instead she focused on the reaction to pain and how she would alleviate it, even though there were obvious signs of transition to second stage that this midwife did not seem to recognise.

How midwives respond to maternal pain can have consequences for the physiology of labour. A midwife from unit 'B' described how clients could be helped to cope with pain, rather than resorting to drugs and epidural immediately:

'... they've [midwives] got to recognise that this woman is a low risk woman and the care does not have to be intense. But that does not mean the midwife hasn't got to be there with the woman....It's a case of being in that room with your woman and offering her the reassurance and care that she needs and trying to reduce her need for... pain relief, which might help her, stay mobilised so she's not lying on the bed, which makes labour longer....letting her use the bath for pain relief, letting her husband rub her back... Encouraging him to take part. ..' [IB17: 404-415]

However, if women do need analgesia and if this is linked by midwifery practice or policy to dilatation of the cervix, women will experience vaginal examinations in order to have particular types of pain management. This represents situation 'd' on the list of indications.

Vignette 4 on the questionnaire set up a case that represented situation 'c' on the list of indications. About half of respondents suspected abnormality (situation 'b') and slightly more wanted to carry out a vaginal examination. Some of those who wanted to carry out a vaginal examination for Vignette 4 also wanted to use vaginal examination in Vignettes 1 and 2, which were normal situations. While almost half of questionnaire respondents seem able to identify an indication for carrying out vaginal examination, almost one third of questionnaire respondents did not recognise that information on dilatation (and other information to identify obstruction) was highly desirable for a diagnosis for Vignette 4. This indicates that there may not be an appreciation of situations where it could be considered advisable for midwives to carry out a vaginal examination to confirm a diagnosis of progress or abnormality.

It is possible that results may not represent midwives practice in clinical situations as some questionnaire respondents comment about the lack of information that provides a holistic picture of a case:

It is very difficult to assess and comment on cases, it is much easier when you are looking at a woman, as it is individual and circumstantial.' [QA 21]

'It is very difficult to just define likely progress without being able to use other knowledge you haven't provided and intuition, gut feeling about a known woman.' [QB 4]

However, in Vignette 4 midwives were required to consider a clinical situation from information over the telephone, provided by a community midwife, where first hand visual and auditory observation of the client was not possible. Two questionnaire respondents identify the need to involve the woman and to use a range of diagnostic information and skills:

'Always involve the women.' [QA 14]

'I would consider so many other things that are not stated in the question, lie and position of the fetus, decent, etc. Anything which empowers midwives to really use their skills will be great.' [QB4]

While the results appears to support a dynamic between a midwife and a woman in creating optimum management for a case, they also emphasise that midwives may not appreciate situations where information from a clinical examination, including vaginal

examination is advisable. This is important as it builds a picture of practice in which the understanding of some midwives about the circumstances in which diagnostic information is required for effective management does not seem to be adequate.

Need for a rapid diagnosis, is identified by interviewees as a cause of uncertainty because of pressure from women to provide accurate information so that they can manage their social situation. This represents situation 'e' on the list of indications. Observation did not support the fact that birth partners need to know if women are in labour, but in each of the cases observed it was obvious from the reaction of the woman to contractions that labour had begun, or in one case where it was not clear there were maternal health problems that require that the woman stay in hospital. Some interviewees believe that women expect to have vaginal examinations and use dilatation of the cervix as a measure of their progress. Information provided in the pre-natal period educates women about progress in labour using dilatation as evidence of progress (Bounty 2002, National Health Service 2001, Northumbria Healthcare NHS Trust 2002) so it should be no surprise if this is the type of information that women expect. However, none of the communication about labour progress that I observed included prompts from women for specific information about cervical dilatation. On the contrary women seemed to be passive when receiving information about dilatation and most of their concerns were more general and related to care. Women do want to know that they are in labour and need to be reassured that everything is progressing and normal, but it is perhaps reassurance and care that they need rather than specific information. It is interesting that one midwife believes that women can be persuaded to accept alternative information to dilatation even if they ask specifically for dilatation initially. It is reasonable to assume that most women could be easily convinced that they are in labour if they have come to the labour ward. Undertaking vaginal examination in early labour is possibly related to midwives reluctance to admit women who are not in 'established labour', women's reluctance to go home unless they are convinced that they will not deliver outside of the hospital and midwives need to document that the cervix was not 3 cm dilated when the woman was advised to go home.

iii) Progress Classification

Progress Classification is the culmination of information gathering and processing resulting in a diagnosis of labour or labour progress. The diagnosis takes the form of a provisional hypothesis, that if accurate at the time is subject to change as a result of an escalating and variable labour trajectory. A provisional diagnosis might require modification when additional information from intermittent assessment during labour is not confirmatory and instead presents conflicting information. Sometimes labour appears to be effective with regular, strong contractions of good duration, but does not escalate according to expectations about normal progress. In such circumstances a provisional diagnosis of effective labour may require review. Sometimes a provisional diagnosis might be partially correct. It is possible that a provisional diagnosis that labour progress is advancing is supported by escalating signs of labour and confirmed at the expulsive phase, while at the same time a provisional diagnosis of fetal presentation or position is shown to be incorrect at the time of birth. When a provisional diagnosis that categorises labour as 'low risk' or 'normal' is demonstrated to be incorrect (e.g. a mal-presentation is diagnosed) or to change during the labour process (e.g. the duration of labour exceeds the expected duration) this is an indication for a medical referral.

The information that midwives use to arrive at a diagnosis influences the way that the diagnosis is expressed. Four of the midwives who were interviewed reported during interview that they did not use routine vaginal examinations. Instead they report that they rely predominantly on holistic assessment that equates with Expectant Management, and is based upon clinical signs from external examination and symptoms reported by clients, including reaction to uterine contractions. Although I did not observe these midwives carrying out assessment I did observe midwives who reported during interview that they did use routine vaginal assessment. Abdominal examination and palpation can confirm a normal presentation and diagnose fetal position, flexion, level of descent of the fetal head and the parameter of uterine contractions. Maternal symptoms and reactions may help to verify this information. Labour is diagnosed by the presence of regular, moderate to strong contractions of reasonable duration, that

generally cause a degree of discomfort and there may be evidence of a 'show' or draining amniotic fluid. Progress is interpreted in terms of contractions that escalate until they are regular lasting every 2-3 minutes, strong and lasting 40 -50 seconds, accompanied by rotation and descent of the fetus; maternal and fetal condition must remain normal. Lack of progress is suspected if labour does not appear to escalate or there is an absence of the signs of transition to the second stage after several hours of good contractions (strong contractions every 2-3 minutes). In such circumstances midwives may suspect the possibility of a delay in labour and use vaginal examination to confirm a provisional diagnosis, exclude abnormality and decide upon further management or referral to an obstetrician.

Interviews, observation and secondary data from client records has demonstrated that almost all midwives in unit 'A' arrive at a provisional diagnosis after comparing information from client's reactions and reported symptoms with information from regular vaginal examinations. Although when women are in early labour and when midwives want to establish parameters of uterine contractions abdominal examination is also used. Assessment of progress is generally based on contractions, dilatation of the cervix, station of the head and fetal condition. Labour diagnosis is based upon uterine contractions and effacement and dilatation of the cervix. A diagnosis of labour that is possible from external signs is superseded by a diagnosis of 'established labour' that is recognised when the cervix has dilated to 3cm. Before this labour is classified as latent and not subject to routines of care and monitoring. Progress is interpreted as progressive dilatation of the cervix, and delay represents a failure of dilatation to keep up with expectations for dilatation rate based upon population studies. In unit 'A' progress should also be based on descent of the fetal head, but as abdominal palpation was not witnessed prior to vaginal examinations is probable that the station of the head is assessed on vaginal examination, interviewees from unit 'B' confirm that station is measured during vaginal examination and descent is measured on palpation. Lack of progress can be suspected if labour does not escalate and is demonstrated by slow dilatation between vaginal examinations. In such circumstances midwives may suspect the possibility of continuing delay in labour and undertake a referral to an obstetrician or use a prescribed obstetric regimen of intervention.

Reasons that interviewees give for using vaginal examination in preference to relying on abdominal examination are: to justify decisions, to diagnose established labour before commencing the partogram, for information on the stage of labour, it is expected every 4 hours, before administering intramuscular Morphine and prior to discharge from labour ward when women are not in established labour. The last two reasons are related to practice guidelines in unit 'A', and unit 'B' has policies that require regular vaginal examinations. The first three reasons that interviewees provide for undertaking vaginal examinations relate to diagnosis of labour, labour progress and labour care. Midwives who use expectant management would have to use alternative information to justify decisions, a diagnosis of established labour cannot be based on dilatation of the cervix and the partogram would have no entries for dilatation. Using expectant management means that a midwife cannot verify that the cervix is dilating and unless there is an indication to carry out a vaginal examination there will be no confirmation of progress until the second stage of labour. While descent of the head is a reliable indicator of progress it is less discernable until the later part of the first stage and the second stage of labour. Midwives who use expectant management have learned to deal with uncertainty about the process of labour, to focus on the end target of a normal birth and to recognise situations where further information is required, while midwives who have only used a routine of assessment based on the criteria of active management might not have developed this recognition. Midwives who carry out routine vaginal examinations have frequent feedback on the course of labour and uncertainty is less of a feature with their approach and they may not learn to tolerate it. In unit 'B' one midwife has experience of expectant management but is prevented from using this approach unless clients refuse vaginal examinations, while in unit 'A' there is no written policy but most hospital midwives support routine vaginal examination. In addition it is possible that focussing on a more limited range of indicators reduces the complexity of the diagnostic process and makes the unpredictability of labour more certain but less accurate. This may be acceptable if the certainty was also a reality but in truth it is not. As an example of the way that appreciation of signs is related to time with women, one midwife [IB17] describes how medical staff cannot understand most of the signs of labour progress that midwives can use:

'they don't spend a lot of time with the women. They only ever come in if there's a problem. They don't come in and look after a normal labourer. The issue with medical staff I think is they don't understand normal in midwifery at all. They just understand the abnormal because they always come in for the abnormal.' [IB17: 167-171]

This is seen as inevitable because of the reduced proximity medical staff have with women unless called to intervene. However, an illusion of a simplified model of progress can be achieved at the expense of failing to acknowledge the complexity of the physiological process and the variability between individuals that is only understood as a result of sustained interaction, observation and assessment in a context of identifying birth as potentially low risk. Midwives are also vulnerable to developing an oversimplified, or problematised allusion of childbirth if they adopt a medical approach where more technical indicators are measured intermittently rather than relying more upon intuitive indicators that only develop as a result of experiencing labour as proximity with women:

'... midwives do have an instinct. I'm sure nurses do ... where ever they're working, whether it's in ITU, when they look after patients for a while, an instinct sort of develops ... you... know when something is going to happen. You can .. anticipate this is what is going to happen.... You can ... feel it. ... which you pick up because you're there with that woman. And the longer you are a midwife, the quicker you pick up the subtleties ...' [IB17: 951-959]

In order for midwives to use expectant management this interviewee considers midwives must spend time with women in labour:

'Then again the midwife is going to have to learn to spend more time with the women...' [IB17: 364-365]

When birth is identified as potentially low risk it is possible while sustaining physiology to weigh indicators within a process of 'vigilant watchfulness' and 'experienced knowing' where midwives use less intrusive methods frequently to ensure that the process of birth reflects expectations based upon experience of varied cases. It is particularly problematic that abdominal palpation is not generally carried out prior to vaginal examination in unit 'A' because:

- Information on presentation and position of the fetus is available and more easily distinguished using palpation.

- Diagnosing presentation and position of the fetus on abdominal palpation can guide the search for the position of sutures and fontanelles on the fetal head.
- Descent of the head is a more reliable indicator of progress than station of the head, that can be misleading because of caput succedaneum and moulding, and comparing descent and station can provide an indication of the degree of moulding.

As well as carrying out abdominal palpation before undertaking vaginal examination it also seems good practice to make a record of the results. Fay (2001, p20) considers it important to '*Record the findings...*' of the abdominal palpation as a '*...quality control exercise*'. This way of working is considered to be important if obstetricians are not to '*lose ... clinical skills*'; the same can be said for midwives. It is also useful to reflect upon the findings from abdominal palpation and produce a provisional diagnosis that can be verified by findings from vaginal examination. This is a useful process to develop diagnostic skills, in particular when learning to recognise progress in a variety of ways. When midwives have developed diagnostic skills and have learned to recognise progress recording evidence from abdominal examination and producing a provisional diagnosis may convince them that it is possible to provide adequate and acceptable care for low risk women without resorting to vaginal examination. Midwives appear to focus on care and this is prioritised in communication over diagnosis.

During observation none of the midwives talked about or reported posture at the time of assessment but midwives [OA1, OA2, OA6] encouraged changes in position to aid rotation and to help with discomfort and two midwives [OA5, OA6] encouraged mobilisation early in labour. Although midwives were not directly asked about care and management a few questionnaire responses advocated mobilisation and change in position in early labour (Vignette 3) and when contractions that had been strong and frequent reduced several hours afterwards (Vignette 4). As well as being an indicator of progress, posture is considered important in normal labour to help with optimum fetal positioning and because of this mobilisation or avoiding supine lying positions may be encouraged. This response indicates that midwives emphasise care over diagnosis, particularly in situations where second hand information is provided as the client is at

home. Mobilisation assists the physiology of labour, encourages favourable rotation of the fetal occiput, descent and improved contractions.

One interviewee puts progress diagnosis in perspective and considers the value of measures of dilatation in normal labour:

'... you can observe a lot by the woman's posture and the way she is responding to contractions and ...if you're not bothered about the rate of progress ... what are you actually gaining by doing that initial vaginal examination, not a lot I don't think really are you? It's only when you feel bound to a rate of progress and you want to establish that she's in labour now at 6 o'clock because that's the point where I'll start the partogram ... but by doing that you're committing her from that point to a rate of progress and the possibility of intervention aren't you because So she might have come in and the cervix might be 2 cm, 3 cm dilated, it might have been like that for a couple of weeks you know.'
[IB19: 600-611]

Results from questionnaires indicate that midwives are capable of identifying low risk cases and diagnosing the stage of labour on the basis of maternal reactions.

Most midwives wanted further information from clinical examination and abdominal palpation, but few required a vaginal examination to confirm their diagnosis. Midwives do not perform so well diagnosing or suspecting problems in labour that result in diminished contractions. This has the potential to be problematic, as expectant management requires that midwives can identify the need for specific assessment and provide justification. This is necessary to recognise if altered physiology develops for mother and fetus or when mechanical problems either exist or should be suspected from developments in the trajectory of labour. However, just as important as diagnosing problems is that midwives sustain normal birth physiology. Results indicate that there are particular strategies involving mobilisation, favourable positions and nutritional intake that midwives can encourage women that are low risk to adopt, that reduce mechanical problems, aid efficiency of uterine contractions and empower women to deal with discomfort.

Summary

While results discussed in this chapter build a picture of practice in which a dynamic between midwife and woman is optimum for case management the understanding of

some midwives about the circumstances in which diagnostic information is required for effective management does not seem to be adequate.

Midwives who use expectant management have learned to deal with the inevitable variation and uncertainty of normal labour, to focus on physiology and individual woman's experiences of a normal birth and to recognise situations where further information is required. In contrast, midwives who are familiar only with a routine of assessment based on the criteria of active management appear to be missing this recognition, while at the same time frequent feedback on the course of labour may make uncertainty less of a feature and they may not learn to recognise it as such or to tolerate it.

Focussing on a limited range of indicators used in active management may alter how the complexity of the diagnostic process is perceived and make the unpredictability of labour appear more certain but less accurate. This inaccuracy could be considered acceptable if the certainty was also a reality but in truth it is not and it may be associated with a failure to recognise problems or potential problems with consequence for the process and outcome of labour if it has undermined midwives alertness for signs of potential abnormality. Despite active management being perceived as a quality assurance measure to ensure that abnormality is detected, in itself it is likely to detect the consequences of abnormality as a failure of labour to progress rather than the cause of the problem.

The potential for abnormality in labour makes it necessary for midwives to use holistic examination that relies on broader skills and criteria than those that form the basis of an ineffective active management style of assessment. However, results from this study indicate that midwives may not consider that their diagnostic skills are adequate for them to use expectant management. It is possible that midwives are not confident to diagnose using external signs because they doubt their skills, others doubt their skills or the context of care increases the pressure for them to be accurate. Unfortunately this misleading perception of accuracy is supported at the expense of holistic assessment.

Most midwives base their assessment of progress on limited diagnostic information from vaginal examination. While midwives who use expectant management reserve the use of vaginal examination for situations when other information provides an inadequate holistic assessment and they requires information from vaginal examination to complete the image of the labour process.

All midwives have available to them holistic information but most in the study regard it as less relevant for diagnosis. A difference in realising and prioritising external or internal signs as diagnostic indicators appears to be a feature of the assessment style adopted by individual midwives. This difference is explored in Chapter 5, in which the results are used to examine the ways by which an individual midwife's diagnostic orientation has implications for the way in which the Diagnostic Process is expressed.

CHAPTER 5: ANALYSIS OF RESULTS -

DIAGNOSTIC ORIENTATION IN LABOUR PROGRESS ASSESSMENT

The model developed from this study and presented within this Thesis (Figure 6.1: Midwives Assessing Intrapartum Progress) reflects the findings of this research about the approach adopted by midwives when they are assessing progress in labour. This approach is given the heading Diagnostic Orientation within the model and is comprised of categories developed from the results and tested for fit against the project model. The sub-headings in this chapter reflect categories of Diagnostic Orientation. As illustrated by the project model (Figure 6.1) individual midwives express a particular Diagnostic Orientation as a result of learning to practice midwifery and provide women with care in labour; part of this involves participating in the Diagnostic Process and assessing labour progress and reflecting on performance in classifying progress and eventual birth outcomes. The Diagnostic Orientation adopted by a midwife influences her participation in the Diagnostic Process (Figure 6.1), which was discussed in Chapter 4. Categories that make up Diagnostic Orientation are identified within the project diagram (Figure 6.1) and given the labels Activity Style, Sphere of Practice and Confidence. These are presented below and discussed in relation to findings within the chapter:

(i) Activity Style as individual midwives express their approach can be grouped to reflect one of two overall approaches to assessment: either an active management style or an expectant management style of assessment; the latter style is less common. As Activity Style is interpreted as a multifaceted phenomenon, in order to structure a discussion of the findings that are relevant to it sub-headings have been adopted (Figure 6.1):

- The evolution of the hierarchy of knowledge and skills,
- Comparing a predictive activity style with a confirmatory activity style for progress assessment,
- The role of experience in developing knowledge and skills for case specific assessment, and
- Organisational and social factors assuming priority over client care.

(ii) Sphere of Practice reflects the work-based location of midwives in the community or hospital, their grade or seniority and the influence of this on their view and approach to labour progress assessment. Sphere of Practice influences Confidence and Activity Style (Figure 6.1).

(iii) Confidence is associated with and appears to be vital within an expectant management style of assessment, and as it is made up of three distinct but related components these are presented as sub headings around which a discussion of findings is organised:

- Motivation that is further subdivided into the impact of vaginal examination for women and providing a positive experience for clients
- Understanding
- Capability

These categories form the basis of the discussion presented in this chapter.

(i) Activity Style

Activity Style represents competing knowledge and competing perspectives on labour progress and it develops in a context of professional midwifery experiences and competing priorities between women's need for care and the influences of the work place that factor in learning what is important. As well as the elements that form the sub-categories of Activity Style and influence Activity Style two other categories within Diagnostic Orientation; Sphere of Practice and Confidence also have an influence on the development of individual midwives Activity Style (Figure 6.1).

Activity style reflects an approach to assessment. While there are degrees of variation, most midwives adopt a style oriented towards active management of labour and measurements of cervical dilatation. A few midwives differentiate low risk cases for which they orientate assessment to a broad range of diagnostic methods broadly reflective of an expectant management style. In this case vaginal examination is used according to case specific requirements when midwives are concerned about the progress of labour, maternal or fetal

condition or suspect abnormal presentations. In the active management style, midwives use dilatation of the cervix as a basis by which they can predict the duration and outcome of labour, based upon population studies of rates of dilatation. In this case expectation about outcome is based upon population parameters, where physiological extreme is poorly accommodated. In the expectant management style midwives use a wide range of skills and indicators to confirm or disconfirm their expectation that normal labour is progressing and mother and fetus are well. In this case the expectation about outcome is based upon physiological circumstances for individual cases and physiological extremes are better accommodated.

Results from this study indicate that opportunities to develop knowledge and skill in labour progress assessment appear to focus predominantly on a limited range of criteria and to incorporate routine 'measurement' of the degree of dilatation of the cervix. While this information is very important in specific circumstances, its frequent use when evaluating progress for low risk cases may reflect an emphasis that exemplifies a hierarchy of knowledge and skills.

The Evolution of the Hierarchy of Knowledge and Skills

There appears to be bias in favour of an active management style of assessment based upon what is considered to be 'technical', 'quantifiable' criteria of progress. This seems to be favoured over an expectant management style of assessment and a knowledge base that is associated with 'female wisdom' or 'experienced knowing'. This second type of knowledge base emerges from extensive proximity with women in childbirth where care is also interpreted as 'vigilant watchfulness' and 'supportive companionship' as a replacement to intervention or investigation in the form of serial vaginal examination. While it is important to identify the value of 'being with' over the more authoritative 'doing to' work style, it is also important to counter the devaluing of midwifery knowledge and the absolute legitimacy of authoritative knowledge that is pervasive, as it 'seems natural, reasonable and consensually constructed' (Jordan, 1997, 57). An expectant management style of assessment is equally scientific in the broadest sense of measurement and observation. Observation traditionally has been a hallmark of science but has not adopted a reductionist stance associated with the use of statistical parameters. This is in contrast with active management's adoption of the partogram by which to graphically record cervical dilatation of individual women sequentially to compare progress

against rates of expected progress based on population parameters (Beazley & Kurjak, 1972).

Observation is the basis of expectant management and the associated knowledge base is therefore claimed as an alternative scientific perspective on labour progress.

To establish normality and progress midwives need to palpate the abdomen to verify among other things the position and flexion of the fetus and the level of the presenting part in relation to the pelvic brim. While effacement and dilatation of the cervix are also indicators of progress it is not necessary to undertake a vaginal examination to obtain this information routinely (McCormack, 2003). It is unnecessary to undertake vaginal examination to determine the level of the presenting part as 'descent can be followed ... By abdominal palpation' (McCormack, 2003, p. 462). This is also the case for position and flexion. Uterine contractions are a good indicator of labour commencement and contractions that increase or sustain frequency, strength and duration indicate labour progress. Although midwives in the study mostly emphasise cervical changes as evidence of progress, midwives caring for healthy women experiencing physiological labour can use information from client reaction and the level of the presenting part as evidence that progress is being made. This is supported by an entry in Baillier's Midwives' Dictionary (Adams, 1983, p225):

'Progress of Labour: this is assessed by descent of the fetal head. This is now commonly determined by fifths which remain palpable above the pelvic brim.'

Until the interval between contractions reduces women can be reassured and made comfortable. So long as contractions increase or sustain there is no clinical advantage to know exactly what progress has been made unless a problem with labour is suspected or the woman will not have access to a midwife.

If midwives did not use regular vaginal examination they would be required to use indicators that depended upon external signs and informed observation rather than what is accepted as 'scientific' knowledge obtained from investigation. According to Baillier's Midwives' Dictionary (Adams, 1983, p224):

'An experienced person can gauge the progress of labour sufficiently accurately by observation of the patient, ...'

Midwives would have to be prepared to classify labour as normal, when in the absence of abnormality they predict a normal birth, and unless problems are suspected experienced midwives would be prepared to wait and see. The same need for acceptance of observation and external signs would apply to pregnant women and their birth partners, who need to develop attributes such as patience. In contrast, 'clients' are currently provided with information that educates them about the process of childbirth from a perspective, based predominantly upon changes to the cervix, and inculcated with the perception that childbirth is precisely unsurprising. This simplification of childbirth is in contrast with the view of professional practice in which the context within which professionals practice is recognised as complex (Altrichter *et al*, (1993). This view is oriented towards a perspective based on reflective rationality, where the experiences of those involved in an action context are the focus for study. Eraut *et al*'s (1998) framework for work-based learning recognises what individuals learn, how they learn and the factors that affect this learning. This may explain why an approach for labour assessment that is suitable for medical practitioners is less appropriate for midwives.

According to McCormack when midwives are caring for 'low risk' women 'it is not essential to examine women vaginally at frequent intervals' (2003, p 463). The reason for this is that midwives are able to use alternative information that is readily available over a sustained period of observation while they provide care for women in labour. This sustained observation is not available to medical staff because they do not spend time with women in labour. A feature of maternity care in the UK is that midwives provide care and companionship and medical staff attend at the request of the midwife or at intervals. Therefore, not only do they fail to observe for themselves, but also if midwives report observed changes to them they are less likely to understand the relevance or significance of the observation. Altrichter *et al*'s (1993) and Eraut *et al*'s (1998) perspective on action knowledge provide insight into the reliance on scheduled vaginal examination and technical information by medical staff. As a result of not being present to observe, or learn the significance of what can be observed medical staff prefer midwives to produce records they can understand and that will be available for them when they visit. Examples of this are recording of dilatation and station on the graph of a partogram and a 'print out' showing electronic fetal heart rate and contractions. However there are times when midwives may need to use vaginal examination because, '... it may be useful to do so when

progress is in doubt or another indication arises. When this is necessary progress can be established ...' (McCormack, 2003, p 463).

However if the risk of problems has been evaluated as low, care and assessment can reflect this:

'... they've [midwives] got to recognise that this women is a low risk woman and the care does not have to be intense. But that does not mean the midwife hasn't got to be there with the woman.' [62: 404-406]

Part of successfully adopting an expectant management style is knowing when it is necessary to undertake a clinical assessment and when this should incorporate a vaginal examination.

Midwifery textbooks were consulted to identify the circumstances in which they recommended that midwives might find it necessary to carry out vaginal examinations. In order to understand vaginal examinations within a historical context older editions of textbooks have been consulted (Myles 1975, Towler & Butler 1980, Bennett & Brown 1989, Bennett & Brown 1999). Most of the indications listed in Myles Textbook For Midwives (Bennett and Brown, 1989, p155; 1993, p159 and 1999, p401-402) (Figure. 5.1) were represented in results from this study.

Figure 5.1 : Indications for Vaginal Examination

According to Myles Textbook for Midwives edited by Bennett and Brown, a vaginal examination may be performed to:

- 'To make a positive diagnosis of labour
- To make a positive identification of presentation
- To determine if the head is engaged in case of doubt
- To ascertain whether the forewaters have ruptured or to rupture them artificially
- To exclude cord prolapse after rupture of the forewaters, especially if there is an ill-fitting presenting part
- To assess progress or delay in labour
- *To apply a fetal scalp electrode
- To confirm full dilatation of the cervix
- *In multiple pregnancy to confirm the lie and presentation of the second twin and in order to puncture the second amniotic sac.'

(Bennett & Brown 1989, p155; Cassidy, 1993, p159 and Cassidy 1999, pp401-402)

This was also the case for indications in an earlier midwifery textbook (Figure 5.2) by Towler and Butler (1980, 321-322). It is worth noting that there are slight differences between the lists from each textbook. However, most of the indications listed are represented in the data from this study. In particular the eighth indication provided by the earlier textbook by Towler and Butler (1980) seems relevant, in this case prior to a woman leaving hospital. There were

items in the list from Myles not identified in the study (*) and the study provided an additional indication for vaginal examination; prior to administering intramuscular analgesia.

Figure 5.2: Indications for Vaginal Examination

'Vaginal Examination in Labour

It may be necessary to examine the patient *per vaginam*, in the following circumstances:

1. To determine or to confirm the presenting part in cases of doubt;
2. To determine the position of the head;
3. To determine the station of the presenting part in the pelvis;
4. To assess the state of the membranes; whether they have ruptured, and or if they have not, whether they are tense and bulging, or flaccid;
5. To assess the progress of labour;
 - (i) By the degree of dilatation of the cervix;
 - (ii) By the amount of descent of the presenting part;
 - (iii) By the amount of rotation;
6. Where there is apparent delay in labour;
7. To decide, in cases of difficulty, whether the cervix is fully dilated or not;
8. Before the midwife in domiciliary practice leaves her patient.'

(Towler and Butler, 1980, pp 321-322)

In contrast to the lists of indications provided post 1980's an earlier edition of Myles Textbook for Midwives (Myles, 1975) provides an insight into midwifery practice prior to the widespread implementation of birth technology such as ultrasound and active management of labour and prior to the virtual eradication of community birth attended by midwives and General Practitioners (Figure 5.3). In particular it is worth noting that in midwifery practice in the UK indication 4 rarely applies today as enemas are now infrequently used and indication 9 is unusual as these conditions are generally diagnosed using ultrasound screening in the antenatal period. What is interesting about the list from the earliest edition of Myles is that vaginal examinations are identified for cases where accurate monitoring on cervical dilatation is required such as 'high risk' cases, when labour is accelerated and when epidural analgesia is used (Myles 1975).

It is clear that the authors of these textbooks considered that alternative information could be used to assess progress. In the edition edited by Bennett and Brown, Cassidy (1999, 155) states that:

'The midwife should realise that a vaginal examination is not always the only way of obtaining this information and that careful, continuous observation of the labouring mother will enable her to avoid making unnecessary vaginal examinations.'

Figure 5.3: Indications for Vaginal Examination**Indications for Vaginal Examination**

Vaginal examinations are now being done more frequently in order to monitor cervical dilatation more accurately in cases of 'high risk' and to diagnose prolongation of the latent phase: e.g. (a) during acceleration of labour and (b) epidural analgesia.

1. To decide whether the woman is in labour.
2. When there is doubt regarding the presentation, as may arise in a primigravid patient with rigid abdominal walls.
3. In an obese patient, to determine whether the head is engaged or not.
4. Before giving an enema to a multiparous patient having strong contractions in case she is nearing the second stage.
5. When in doubt as to whether the second stage has begun, e.g. persistent pushing at the end of the first stage.
6. To determine the cause of delay and to report such facts as the level of the presenting part, size of the caput and the degree of moulding to the doctor.
7. When prolapse of the cord is likely to occur:
 - (a) After the membranes have ruptured in polyhydramnios.
 - (b) After the membranes have ruptured in a breech or face presentation.
 - (c) After the membranes have ruptured in a multiparous patient when the head is not engaged.
 - (d) During labour induced by amniotomy.
8. If there is doubt regarding the lie of the second twin, or in order to puncture the second bag of membranes when contractions have not recommenced after 5 minutes.
9. When some abnormality of the fetus is suspected, e.g. anencephaly or hydrocephaly.'

(Myles, 1975, pp247-248)

There is an interesting development in the most recent edition (Edn. 14) of Myles Textbook for Midwives where McCormack (2003, p. 445) adds '... which should be kept to a minimum' to the statement in the above quotation. In this edition of the textbook indications for performing vaginal examinations are different from those in earlier editions, as two have been omitted from the list ('To make a positive diagnosis of labour' and 'To apply a fetal scalp electrode'). This may reflect changing views on labour monitoring or different views held by the author of the recently updated chapter in the book and the new editors (Fraser & Cooper, 2003). There are several factors that might explain why most midwives in this study use dilatation of the cervix as a measure of progress and vaginal examination as a procedure routinely. It is possible that effacement and dilatation of the cervix are identified as the definitive sign of labour and labour progress. This is definitely true in unit 'B' where policy requires regular vaginal examinations. While midwives may use other ways of identifying or evaluating labour these alternative methods are possibly less credible. Credibility is possibly reduced for various reasons such as:

- cervical dilatation is recognised as a more objective measure because it is expressed numerically, as a series of incremental increases that changed the focus of labour duration from that of a maximum permissible duration to comparison with a mean duration for each stage that is based on population measurements (Llewellyn-Jones 1982),
- dilatation of the cervix is evidence of the effectiveness of uterine contractions, before external perineal signs are present,
- vaginal examination could possibly be considered as a high status examination because it appears a more technical or biomedical method to obtain information, which is only used by medical staff and midwives,
- vaginal examination is a difficult procedure to learn and requires a lot of rehearsal and for this reason it may assume overstated importance relative to other examination methods that can also be employed. Midwives still developing their skills may want to carry out as many vaginal examinations as they can, and those who have developed their skills may experience reluctance not to use them when the chance presents.

Although many of the motor skills that midwives use are difficult to learn, vaginal examination can only be used and practiced during labour, while skills such as abdominal examination and palpation are also used and practiced during antenatal care and the methods used are described in the section on antenatal care in *Myles Textbook for Midwives* (McCormack, 2003). There is much more opportunity to develop and use other skills when not caring for women in labour and because of this it is possible that vaginal examination is symbolically associated with labour ward work.

While some midwives may use other information extensively, the dominant knowledge base for reporting labour assessment appears to be cervical dilatation. All other indicators assume a place as the supporting act to which changes in the cervix has the starring role within formal information exchanges about progress (handover, white board information and labour record) as the dominant discourse. While it can be argued that a medicalized view of the childbirth incorporating the mechanism of childbirth has relevance for midwives' knowledge base, the aspects of medicalization that involve technology and intrusive curiosity about the internal functions of the uterus and fetus predominate over understanding and explaining the process of birth, that use signs that are available from external examination, palpation and the reaction

Chapter 5: Analysis of Results - Diagnostic Orientation in Labour Progress Assessment and behaviour of the pregnant woman. This medicalized knowledge base can explain the apparent contradiction of doing a vaginal examination, having already diagnosed labour because of the concept of 'established labour'. This is generally accepted within a medical model of progress based on population parameters to be the stage that marks the beginning of the accelerated phase of cervical dilatation (3cm). What is not accommodated easily within this model is the time taken for this marker to appear and the relationship between this and other signs of progress, such as descent, changing fetal position resulting from rotation, flexion and maternal response to contractions. This model diminishes the importance of client reaction and the role of midwives providing care and encouraging coping skills, instead often relegating early labour (the latent phase of dilatation) to the informal care and support systems of the family.

Comparing a Predictive Activity Style with a Confirmatory Activity Style for Progress Assessment.

The results of this project indicate that the way that most midwives gather and process information about labour progress does not differentiate the type of information or how this is weighed between high risk and low risk cases, and almost all questionnaire respondents thought they were required to use routine vaginal examination for low risk women. There is an indication in the results that midwives differentiate assessment by place of birth rather than by type of case [IA4, IA7, IA9], and midwives seemed unclear about the type of cases I wanted to observe when I informed them I was focussing on 'midwives cases'. Uncertainty about differentiating cases for Expectant Management may partly explain why most hospital midwives appear to be unable or unwilling to rely on information comprised of external indicators.

However, over-reliance on cervical changes is possibly related to a relative lack of confidence in observation. Midwives give attention to contractions, particularly when they are frequent, but there is little evidence of decisions based on descent of the fetal head and it is the station in relation to the ischial spines that is often recorded; despite the partogram design for recording descent and the reported [MI5] difficulty of this estimation.

Although women have abdominal examination when they arrive on the labour ward, there is little evidence in the form of estimations of descent of the head, or diagnosing a vertex presentation

by abdominal palpation from observation or entries in case notes. One respondent [IA2] said more time was taken with palpation if clients refused vaginal examination, which means that vaginal examination must generally be used to establish position and station, although these are much harder to estimate vaginally than abdominally. It is possible that palpation is thought superfluous if vaginal examination is being used. McCormack (2003) among other authors insist that abdominal palpation should always precede vaginal examination but it is possible that some midwives do not have sufficient skills and confidence in abdominal palpation to base progress assessment entirely on this. Most of the midwives who practiced prior to wholesale implementation of active management of labour have now retired. Although contemporary midwives might have been supported in the clinical area by midwives who had a more rounded repertoire of assessment skills, the dominant practice and discourse of active management and routine vaginal assessment in consultant hospital care is likely to have influenced the development of their skills in assessment. One midwife [IB16] explained that she had always used vaginal examination for all types of cases in all types of context, and two [IB16, IB18] admitted they had never been able to assess the attitude of the fetus on palpation and had not been taught this during preparation for practice.

Respondents who prefer using vaginal examination point out the importance of the procedure in managing client care. One interviewee [IA2] considered there are two situations when vaginal examination is important. One situation is if there are possible problems during labour. Resorting to vaginal examination when problems are suspected or identified using other diagnostic methods is compatible with care based on an expectant management style. In such circumstances a midwife would need to investigate problems such as failure to progress. The other situation that the interviewee identified was on admission to the labour ward to diagnose labour and exclude abnormality. Malpresentation and disproportion can generally be diagnosed by abdominal examination more effectively than vaginal examination, especially in the early part of labour. If abnormality were suggested as a result of general and abdominal examination then it would be important to corroborate this with information obtained on vaginal examination. When women are admitted, labour has generally been diagnosed using other signs before vaginal examination is performed. This means that vaginal examination on admission is not clinically required for low risk cases, but results indicate that midwives consider it is important or is required. One respondent [IA4] explained that she must establish dilatation in order to start

using the partogram (graph within labour progress documentation). In reality a partogram can be used before cervical dilatation is established if the characteristics of uterine contractions reflect that labour has commenced and escalating contractions are strongly suggestive of advancing labour. Confirmation of the effectiveness of contractions is provided by descent of the fetal head and dilatation of the cervix, which can be plotted on the graph [IA1]. Dilatation and or descent are useful when compared with effective uterine contractions (McCormack, 2003). Triangulation is more sensitive as it is more comprehensive and this is the reason for investigating dilatation and comparing this to other progress signs if problems are suspected or anticipated events do not materialise. Reliance on dilatation without due regard for other signs of progress is less sensitive. A belief that cervical dilatation is the basis for commencing labour documentation represent that an accurate diagnosis of labour and labour progress is required, and triangulation is being applied to diagnostics, however the absence of abdominal examination and palpation post admission does not suggest this is the case. Rather it suggests that dilatation and station of the presenting part are replacing descent as a sign of progress, which has implications for diagnosing the cause of delay in labour if it is related to disproportion as well as for women's experience of labour. This appears to be the case on occasions when information from abdominal palpation was observed to be particularly relevant and more critical for client care than the state of the cervix but abdominal palpation was not carried out. An example of such a case [C7, OA6, OA7] is presented in Figure 5.4

Midwives may have become so accustomed to orientating their management style on cervical dilatation as part of the regular assessment of active management, that it is difficult for them to view labour progress by other means. Possibly because they have learned to depend upon cervical dilatation and to view labour and labour progress in terms of what is happening with the cervix at intervals. Predicting dilatation rate and measuring this at intervals is an approach where there is regular feedback and if progress is less than anticipated the cause of this can be investigated.

This can be contrasted with an approach based on confirming physiology using a range of information and examinations to exclude factors with implications for progress. In the latter case diagnostic skills are used more holistically and should detect potential problems. If everything is normal then waiting for signs that are less immediate than dilatation is necessary to confirm progress. However, in the above case [C7] only one abdominal examination was

carried out, although a client experiencing an urge to push without external perineal signs of second stage is an indication of a posterior position of the occiput. However, the midwife had determined that the cervix was well dilated earlier in the labour and was anticipating good progress.

Figure 5.4: Observation (hand notes) of Client [C7] cared for by two midwives [OA6 & OA7]

When the client was admitted to the labour ward an abdominal examination was carried out at 5.10am. The lie of the fetus was longitudinal, the position was occipito anterior, and the cephalic presentation was 1/5 palpable [OA6: 18-19].

A vaginal examination was also carried out because the client was possibly in labour.

The cervix was thin and effaced. The Os was 6cm dilated and well applied to the presenting part. The presentation was cephalic, and was at the [level of the] ischial spines [OA6: 28-30].

At 7am the contractions were quite strong and the client was reporting occasional rectal pressure. [This could be explained by increasing descent of the head in transition to the second stage, but premature pushing urges are found with occipito-posterior positions. Interestingly I noticed at this stage that there was a lot of fetal movement (from limbs) in the left fundal area [of the uterus], and that the hand held doptone was most effective in producing a fetal heart on the right side, mid way between the flank and umbilicus...] [OA6: 47-53].

08.15 There was a change of shift and a second midwife assumed responsibility for care [OA7: 65-66]. At this stage the client was pushing with contractions, but there were no external signs to indicate that the cervix was fully dilated. The sister in law expected the labour to be ending soon (because of her own birth experience) and encouraged the client to push whenever she complained of pressure. The midwife did not stop her pushing but neither did she encourage her actively. The cervix may have been fully dilated but there was little indication of this.

I ended observation (Record obtained from case file):

At 08.15 there was not record of an abdominal palpation but a vaginal examination was carried out. The midwife reported that it was difficult to assess progress because the client was uncomfortable. A rim of cervix was palpated. The presentation was cephalic at the level of the spines but the position was not defined [OA7: 74-76].

13.10 Progressed to a normal delivery. The position of the fetal head at delivery was direct occipito posterior [OA7: 103-104].

Another indication that an urge to push was due to position rather than progress were signs on inspection of the abdomen that fetal limbs were anterior. Although abdominal palpation was not repeated, vaginal examination was performed by both midwives [OA6, OA7] and in each time the position of the fetus was not determined. This indicates that there was a focus on progress as expressed by cervical dilatation and a failure to look for reasons why the client wanted to push prematurely. Perhaps when midwives focus on restricted and routine criteria they are less likely to try to or are less able to detect abnormal labour because they fail to consider all of the relevant signs and fail to become alerted. Alternatively it is possible that they are

misleadingly reassured by (as in Figure 5.4) information on dilatation that indicates good progress. It seems that midwives who appear to have a grasp of the knowledge base concerning labour progress never the less demonstrate little ability to use this within diagnostics. This may reflect the experience they have had in midwifery.

The Role of Experience in Developing Knowledge and Skills for Case Specific Assessment.

Results indicate that while most midwives use routine assessment based on vaginal examinations, some midwives provide a less intrusive form of assessment for low risk cases, unless problems develop. It appears that there are differences in knowledge and skills between the two 'groups' that reflects a difference in emphasis given to particular signs, to prioritising clinical care and supporting maternal physiology over other factors. Results from interviews explain these differences by providing insight into the role of experience in the development of knowledge and skills in assessment.

Interview transcripts provide an impression of the knowledge and skill attained by each individual midwife in a context of assessing labour progress, in particular that which leads to the ability to identify low risk clients and that, which supports expectant management. It is apparent that knowledge and skills developed by midwives since qualifying and also during initial midwifery education continues to be an important influence on current practice. Researcher bias is impossible to avoid when making such judgements and therefore transparency about the basis of judgement is provided. This is based on using constituents of knowledge and skill expressed as six attributes reflecting the aims of the research project and the model of labour progress assessment developed from and being tested against project data (Figure 6.1). These attributes: Propositional knowledge, Practice knowledge, Experience in Years, Experience in Type, Role in Change and Avoiding Routines, have been used against which to compare transcript data to evaluate knowledge and skill from a perspective of expectant management.

In order to compare transcripts, each attribute has been allocated three criteria and an associated score against which each interview transcript has been evaluated (Figure 5.5).

Scores reflect a bias, with higher scores representing characteristics of expectant management.

Figure 5.5: Attributes of Knowledge and Skill

	Practice Knowledge	Propositional Knowledge	Avoiding Routines	Experience In Years	Experience in Type	Role in Change
EXTENSIVE 3	A critical appreciation of the perspectives, skills and issues.	Varied in depth knowledge that directly bears upon intra partum care.	Routine assessment not part of care.	> 20 years	Consultant unit + community birth / MLU	Changing own practice + providing a model for holistic practice
MODERATE 2	Thorough knowledge with some critical insight.	Discussion of relevant knowledge that seems broad and relevant.	When there is no organisational pressure	10 – 20 years	> 1 Consultant unit / non NHS	Changing own practice / creating change towards medical model
LIMITED 1	Focused on doing job as specified by workplace rules.	Description of rules / policies to explain practice	Not at all	< 10 years	Consultant unit	Following custom & practice

Transcripts from individual interviews with midwives from unit 'A' are allocated a score in respect of each attribute of knowledge and skill (Figure 5.6). Scores for each attribute when added together produce a total score for each interview transcript, which has been allocated a rank used to compare knowledge and skill in assessment between individual midwives. There are a few interesting observations in the order of ranking. As expected, midwives reporting that they use expectant management for low risk cases¹ all obtained a high rank (ranks 1, 2, 2, 5); three have high scores for all attributes but the fourth has low scores for experience.

Figure 5.6: Scores, and ranks of scores, for individual Attributes of Knowledge and Skill.

	Practice Knowledge Score	Propositional Knowledge Score	Avoiding Routines Score	Experience In Years Score	Experience in Type Score	Role in Change Score	TOTAL INDIVIDUAL SCORE	RANK
IA1 ¹	3	3	2	3	2	3	16	2
IA2 ⁴	2	2	1	2	1	2	10	8
IA3 ⁵	2	2	1	3	1	1	10	8
IA4 ³	2	2	1	1	1	1	8	13
IA5 ⁵	2	2	1	2	1	1	9	10
IA6 ³	2	2	1	1	1	1	8	13
IA7 ¹	3	3	3	2	3	3	17	1
IA8	2	2	1	3	2	1	9	10
IA9 ¹	3	2	3	3	3	2	16	2
IA10	2	2	2	2	2	2	12	5
IA11	2	2	2	3	1	1	11	7
IA12 ¹	2	3	3	1	1	2	12	5
IA13 ⁴	2	2	1	3	2	1	9	10
IA14 ⁴	2	2	1	1	1	1	8	13
IA15 ²	3	2	1	3	2	2	13	4
Attribute score	34	33	24	33	24	24		

Of interviewees who do not use expectant management, except for one ² who attained rank 4, none were ranked higher than midwives using expectant management. Three with the lowest rank (rank 13) each had less than one years experience on the labour ward ³. Low ranks were also attained by those with extensive experience who were also anticipating retirement ⁴ (ranks 8, 10) or for whom retirement was imminent ⁵ (ranks 8, 10).

Combining interviewees' scores to produce a group score for each attribute, results in scores for Propositional Knowledge (33), Practice Knowledge (34), and Experience in Years (33) that are higher than scores for Experience in Type (24), Role in Change (24) and Avoiding Routines (24). High scores for Experience in Years, Propositional Knowledge and Practice Knowledge reflects the substantial experience and knowledge of labour assessment of this group of interviewees.

Propositional Knowledge and Practice Knowledge are improved as a result of study on courses related to midwifery, especially after registration. Nine of the twenty-one questionnaire respondents from unit 'A' obtained a diploma or degree at registration and all but one respondent has undertaken post-registration education since qualification, most non-accredited but also (14) at undergraduate or postgraduate level. This amount of participation indicates the probability that respondents have adequate Propositional Knowledge and the level of study indicates adequate Practice Knowledge for effective decision making.

Experience is believed to be important in the development of Practice Knowledge although specifics of experience as duration or as focused involvement in a particular type of activity are not differentiated (Eraut *et al*/1998). Interviewees in unit 'A' have about 240 combined years of experience that range from 0.5 years to 31 years and an average experience of 16 years. Most either have more than 20 years (6) or 15 - 19 years (5) experience. The remainder (4) have less than 4 years experience. Of the 240 years of experience, 193 years has been gained within unit 'A', this reflects a very stable workforce, especially as 32 years of experience elsewhere can be accounted for by two of the midwives, and nine midwives have only worked in unit 'A' since qualifying. Duration of experience for questionnaire respondents from unit 'A' is similar to interview respondents from unit 'A'. Twenty one midwives from unit 'A' have accrued 203 combined years of experience, although most (18) have less than 15 years of experience.

These results from questionnaires compare with education and experience duration from interviewees, as do questionnaire results from units 'B' and 'C'.

Despite the amount of experience there is little evidence of intrapartum care experience of different types. Two interviewees had worked for other employers and overseas but mostly in hospital midwifery. Of the 193 years combined experience gained by the interviewees in unit 'A' most was in hospital midwifery, and there appears to be less than 25 years of experience gained in the community after qualification. Two of the midwives were selected for interview because they work in the community.

Of twenty one questionnaire responses from unit 'A', eighteen midwives had completed 81-100% of experience in consultant units and very few had the same degree of an alternative experience. Alternative experience, that reflect experience in the community, midwifery led units, general practitioner units or overseas, is not so represented in questionnaire responses than the interviewees. Results from unit 'B' are similar and unit 'C' has a much higher proportion of time in alternative experience, unsurprisingly as this is a midwifery led unit. Results indicate that there is stability of workforce in each of the units and this combined with the duration of experience indicates that challenges by the workforce to long established ways of working are probably at a low level and infrequent.

Similar group scores for attributes Experience in Type, Role in Change and Avoiding Routines, suggest an association between them, and the same logic supports an association between Propositional Knowledge, Practice Knowledge and Experience in Years. The combined scores for all interviewees from unit 'A' is high for attributes Propositional Knowledge, Practice Knowledge and Experience in Years (Figure 5.7a) and there is not much difference between the combined scores for the four interviewees who use expectant management and the combined scores for the eleven interviewees who do not or the combined score for the whole group. This can be seen more clearly if group average scores are compared (Figure 5.7a).

Figure 5.7a:

Group scores for propositional knowledge, practice knowledge and experience in years	Combined Score	Average Score
Whole group (15)	100	6.6
Active management style group (11)	69	6.3
Expectant management style group (4)	31	7.8

Combined scores are lower for attributes Experience in Type, Role in Change and Avoiding Routine compared (Figure 5.7b) with the previous categories (Figure 5.7a). However, in this case the subgroup of four interviewees who use expectant management have a high combined scores for Experience in Type, Role in Change and Avoiding Routine compared with the combined score of the remaining eleven midwives and the combined score for the whole group. This can be seen more clearly if group average scores are compared (Figure 5.7b).

Figure 5.7b:

Group scores for experience in type, role in change and avoiding routine.	Combined Score	Average Score
Whole group (15)	72	4.8
Active management group (11)	42	3.8
Expectant management group (4)	30	7.5

It seems that while Experience as Years is associated with development of midwifery Propositional and Practice Knowledge, Avoiding Routines in labour assessment is more closely associated with Experience as Type and Role in Change. In particular the type of experience that can be linked to developing skills and knowledge required for expectant management is not associated with consultant unit team work. In the same way a role in change can lead to midwives adopting an expectant approach to labour assessment, if the change role is associated with developing a holistic women centred approach to care and assessment and is not subject to hierarchy within the midwifery team. It appears to be difficult for midwives to change their practice, even when there is evidence that this is appropriate if the practice they wish to adopt is different from the usual practice of co-workers. An example of this is provided in hand notes made during the observation phase in unit 'A': A midwife reported that she had attempted to modify her practice and avoid routine admission electronic heart rate monitoring, but she had been advised against it:

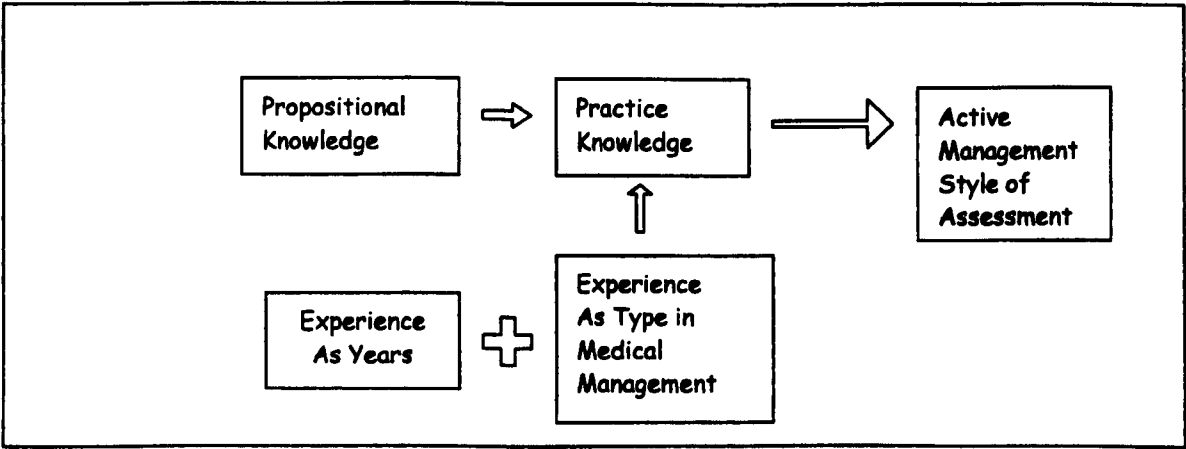
'... The midwife thought it was less important to avoid routine VE's than routine CTG's and she had undertaken a study... and had the support of the Head of Midwifery to change her practice, however the clinical director advised her against it as the practice in the unit was to undertake this routinely. If there were a problem it would be difficult to support her different practice. She was aware that the recent NICE guidelines (2001) do not support admission CTG's and that her practice could be criticised outside of the Trust for continuing to use them, however within the trust they were still accepted. ' [EM 8, hand notes 41-51]

This is an example of how local expectations may not reflect either a national view or current research based guidelines about appropriate practice.

In unit 'A' local expectations appear to dominate current ideas of good practice and this may in part be an explanation for routines of assessment and the failure of most midwives in unit 'A' to adopt an expectant management style. Figure 5.8 illustrates how experience of labour assessment in situations where 'medical management' predominates is not associated with rejection of routines for low risk cases and instead an active management style of assessment persists. This appears to be the case even when midwifery knowledge is substantial, although this is possibly linked with an extensive knowledge base oriented to a view of birth as a risky condition that required investigation and potential intervention.

Just as midwifery knowledge does not seem to influence the approach to assessment adopted by most midwives, it may also be the case that individual midwives varied experience and in particular experience in the community does not lead to the adoption of an expectant management style. One interviewee has had an extremely varied career and has developed keen

Figure 5.8: Active Management Style Adopted

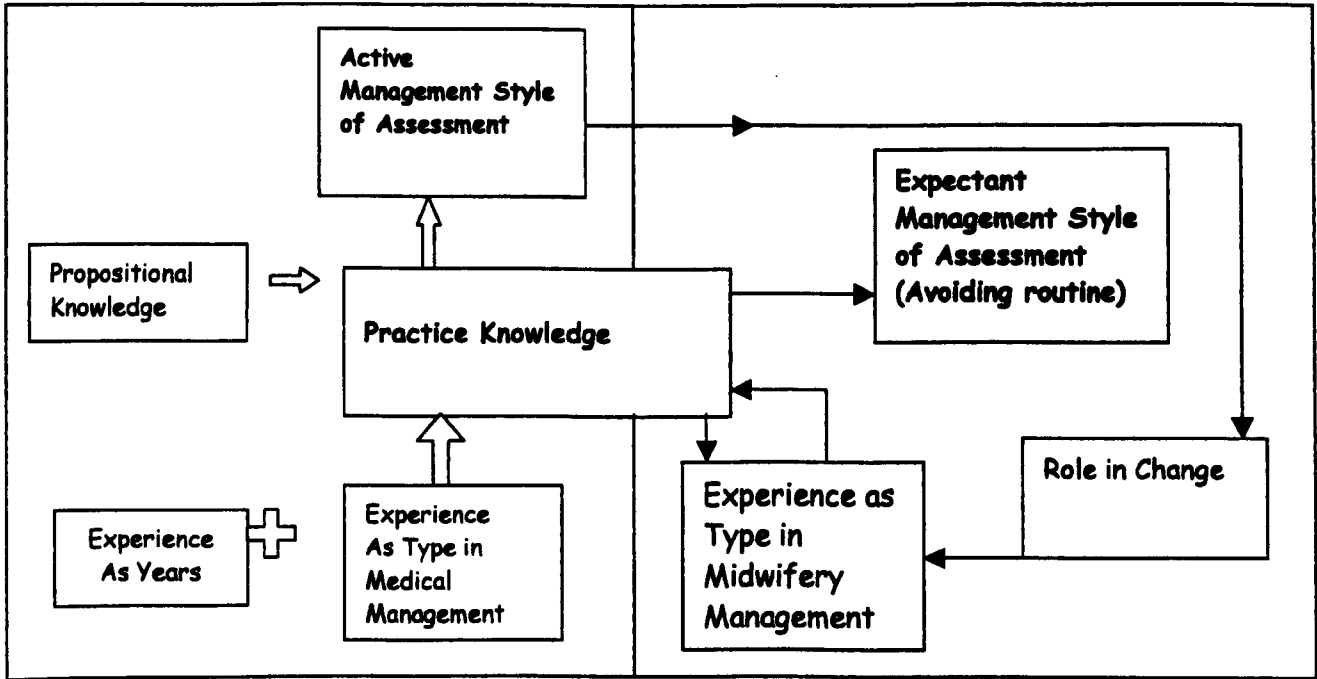


skills of observation and despite this she continues to use an active management style of assessment. However, what appears to be different is that this midwife uses skills in observation and routine vaginal examination. She considers this to be a holistic approach to care and this type of approach does provide plenty of information for diagnosis, however it fails to recognise the potential problems of vaginal examinations for women (Menange, 1996), and to recognise that there are situations where the procedure is unwarranted.

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Of the interviewees who use an expectant management style, three [IA1, IA7, IA9] spent a substantial time on the consultant labour ward in unit 'A' during the early part of their career. For these midwives skills and knowledge required for an expectant management style developed later in their career. This seems to have resulted from participating in organised practice change based on women centred community team care from which or during which they learned to avoid routines of progress assessment. Although, two of these midwives also had undertaken a detailed study of intrapartum care as part of a practice change project that led to the English National Board (for Nursing, Midwifery and Health Visiting) 'Higher Award'. Figure 5.9 shows how a Role in Change provided an opportunity to evaluate the type of assessment that midwives can use for low risk cases. In this situation experience as type in medical management has contributed to Practice Knowledge, and has therefore indirectly influenced the Role in Change. Role in Change influences Experience in Expectant Management, which is also influenced by and influences Practice Knowledge. In this way Experience as Type in Expectant Management contributes to the development of the type of Practice Knowledge required in order to avoid routines in labour assessment that is expressed as an Expectant Management Style of assessment.

Figure 5.9: Expectant Management Style Adopted as an Adaptation



Two midwives from unit 'B' describe how they developed an expectant approach to assessment during work experience that required them to work in ways that were different to the experience they had before.

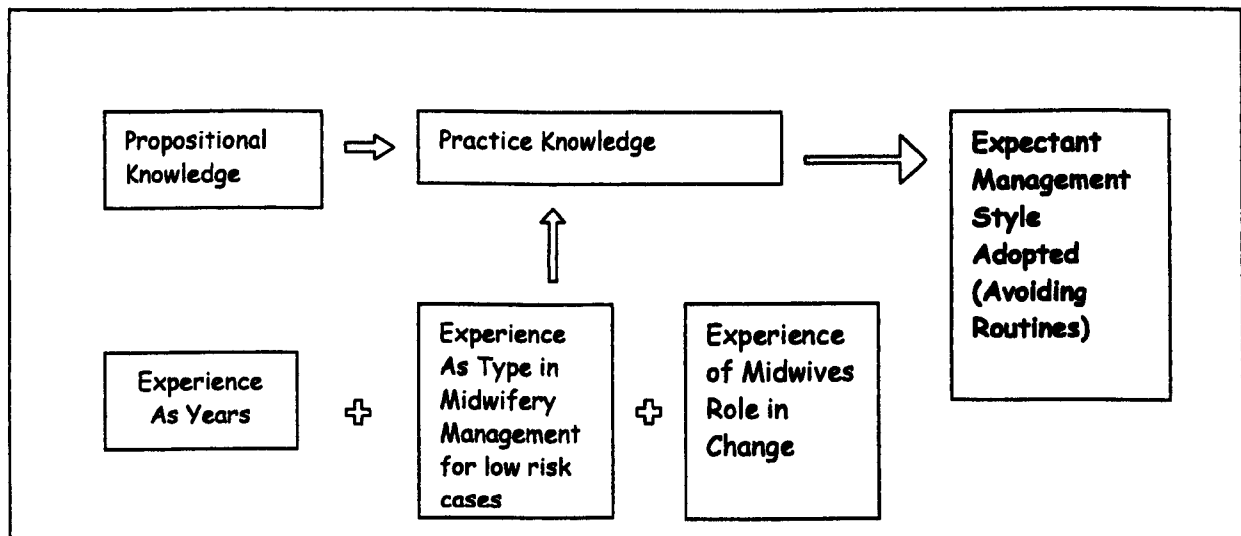
171

'I'd never been exposed to the idea that there might be an alternative to just doing things routinely every 4 hours, you know, because that was ... the component of my ... midwifery education ... you do vaginal examinations every 4 hours... Now although there was emphasis on abdominal examination, you utilised that but you confirmed everything with a VE.' [IB17: 47-54]

'In Bangladesh, ... The hospital ... had its own training programme,... So presumably that's the way they'd been taught by the other expatriates who had lived there. Now just thinking back, the person who taught them before I went, ... had been in Bangladesh for almost 20 years, so she must have done her midwifery in this country at a time when perhaps midwives were not doing things routinely and she'll have had a lot of community experience when they'd been at home. So that's where she'll have developed her skills.' [IB19: 99-108]

While three interviewees from unit 'A' who adopt an expectant management style for low risk cases had substantial experience before engaging in practice change, one in this subgroup has been qualified as a midwife for less than one year [IA12]. She reports that she learned about expectant management during midwifery education, especially during a negotiated elective experience in the community where she attended a number of home births. Figure 5.10 shows how experience in Expectant Management has influenced Practice Knowledge development so that Routines are Avoided. Since qualifying this midwife has been involved in the care of high risk and low risk cases on the labour ward and she attempts in each case to differentiate between the cases to determine the most appropriate style of assessment.

Figure 5.10: Expectant Management as Midwifery Care



The community midwife who was the role model for this midwife during her student elective placement provided a woman centred approach to care. This midwife was not part of the interview sample, but she had provided care for a client included in the sample of case notes and labour records that made up the retrospective data sample. This midwife and a second midwife,

who was interviewed [IA7] and who reports that she uses expectant management, cared for the client. In contrast with other labour records examined these included very detailed reports of findings from abdominal palpation and vaginal examination; as well as details of client state and reactions to labour that were used as signs of progress. In addition information was included on coping positions and movement patterns adopted by the client. As a result of an extended community experience working with a midwife who is providing home birth that is women centred and tuned into the significance of maternal behaviour for progress assessment and well-being, this interviewee appears to have developed confidence and a broad understanding of progress that is not based on routines of assessment. As a result she is able to provide expectant management of labour for low risk cases.

The results from interview indicate that midwives who use an expectant management style have had experience providing care for women experiencing low risk birth. The location in which this experience is gained is either outside of the consultant labour ward or on the consultant labour ward while they are not part of the team of midwives providing care for consultant cases. It seems that when midwives have worked within the midwifery labour ward team for a number of years they require a period of change within which to learn to avoid routines or unlearn routine. However, the experiences of one interviewee suggests that it is possible for student midwives to learn to avoid routines before registration, if there is an opportunity for them to practice in this way within a supportive environment provided by midwives who have appropriate skills and knowledge from whom they can learn.

A line of investigation pursued in questionnaires was to discover if midwives understand the significance of external signs of progress and were able to diagnose labour and labour progress from a variety of indicators. Responses to case Vignettes demonstrated this was generally so. As previously discussed (section on Information Processing), diagnostic responses to Vignettes indicate that respondents do recognise indicators for their significance in most situations. However, interviewees also recognise indicators for their significance but most describe how they also carry out routine vaginal examination. Because of this it was not clear if midwives realised what was different about expectant management of labour from active management of labour and if midwives were competent to use this approach. Questionnaire respondents agreed that expectant management recognises

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progress as quality of contractions, descent of the fetal head and client reaction and that with expectant management vaginal examination is used selectively and most considered that midwives are competent to use skills of assessment in a non-routine way and provide expectant management. Interestingly one of the interviewees from unit 'B' recognised that she did not understand how labour progress can be assessed if vaginal examination is not used [IB18].

Rather than viewing childbirth as pathological, questionnaire respondents primarily interpret information from the perspective that the process of labour is variable and normal, with the exception of Vignette 4, for which a surprising number of respondents did not recognise a strong potential for abnormality. It was not possible to determine how interviewees who use an expectant management style responded to Vignette 4 as questionnaires maintained the anonymity of respondents. The reason for this reaction to Vignette 4 is not evident but it might be because few respondents have worked in the community where this case was located. It may also be due to insufficient emphasis on differentiating between pathology and physiology during formal and informal learning during pre and post-registration midwifery courses. It is clear that midwives records predominantly omit specific indications for undertaking vaginal examination. It is possible that this failure to be specific causes difficulty for midwives and students understanding purposely why in the circumstances of each case it was considered necessary to 'assess progress' by vaginal examination. It is often appropriate for midwives to confirm that uncertainties about labour (malpresentation, malposition, excessive moulding etc) when abnormality is suspected, have been investigated and excluded or referred to medical staff, in which case it is important that this is recorded in case notes.

There are indications of an association between a routine predictive assessment approach and a reduced ability to distinguish low risk and high risk cases either in demarcating cases for expectant management or diagnosing problems except in terms of failure of dilatation of the cervix to keep up with population 'norms'. Midwives who have in the past or do still provide expectant management for low risk cases appear to have a greater understanding when it comes to diagnosing progress or problems using a variety of information, and in identifying the situations where vaginal examination is required.

Organisational and Social Factors Assuming Priority over Client Care

All of the midwives from unit 'A' who were interviewed provided information on how Organisational and societal factors influence the assessment of labour progress. Several interviewees identified managers and consultants as influential and mostly supportive. There was reference to blame culture, but managers were not identified as perpetuating this and only one interviewee implicated consultants. Observation was carried out on the labour ward at night and medical staff that were present had responded to a request by a midwife that they attend. When they were present they did not encourage midwives to undertake specific assessment or question midwives assessment activities or diagnoses. However, this is not surprising as labour ward midwives were not observed avoiding or delaying regular frequent vaginal examinations. Risk management was not reported as having as great an impact on assessment as workload and volume of work and the conflicting care needs of clients. However, while volume of work varied during the observation phase it was never particularly heavy. This observation is supported by a view from an interviewee who has worked in several other units:

'I don't think you could categorise it as a really busy unit.' [IA8: 613-614]

In any event regardless of the volume of work assessment methods remained consistently orientated to routine vaginal examination.

In respect of risk management there were several references to using vaginal examination in low risk cases to exclude possible, rather than suspected abnormality:

'... when ... they refuse [vaginal examination], you think to yourself 'your depending on your other things like palpation and everything' and just think 'I just hope its not a compound presentation or maybe even a breach or something' you know it could be an undiagnosed breach.' [IA2: 265-270]

And provide a record of dilatation of the cervix:

'If I was to bring somebody in and deliver them 2 hours later without doing a vaginal examination and something went wrong I would be asked 'why did you not do a vaginal examination?' So we do them!' [IA2: 128-131]

Neither explanation seems affiliated with confidence in alternative midwifery skills or the organisation as a supportive institution and they may instead represent a blame culture. As this does not appear to be fostered by managers, it could possibly be perpetuated within the midwifery team. This finding is important as it illustrates how health professionals trap themselves by fostering and upholding a culture of professional working within which

practitioners identify as both potential victims and oppressors. Such a culture is often associated with practice based upon superstition rather than understanding, and this is an explanation for a failure to distinguish between actual and potential risk as a result of their partial understanding of the criteria used within local risk management processes. The potential for midwives to become victims of clients' attempts to use litigation against them may partly explain the emphasis within labour records on recording that clients have consented to vaginal examination while the specific reason for doing one is rarely provided:

'... not all of the patients, some of them it is 'How can I get some money out of this....?' or 'Who can we blame?' for what ever has happened. And the midwives unfortunately are now trying to protect themselves. Its true ... I've never been taken to court but I count myself lucky. One of the other midwives was. ...A case that she had eleven years ago... She's retired ... certainly if you go through that kind of experience you are going to think twice... its happening more and more often.' [IA13: 809-819]

'... but then you see it's the fear of litigation. Not just for the doctors but for other colleagues.' [IA 3: 25-26]

It may also explain why some midwives will undertake vaginal examination or artificial rupture of fetal membranes when there is no clinical indication, because women request that they do so:

'They are the ones [clients] asking for ARM's. You've got to remember their mothers are saying to them 'Have you're waters broke! Get them waters broke!' So of course the girls come in and say 'I would like my waters broke.' Now that's patients choice so your hands are tied. If she's in labour and you're saying to her 'Your 3 - 4 cm.' if she says she wants her waters broken you've really got to do it. Because our hands are tied. Yes it's a medical procedure. But if I got the doctor he would say yes do it.' [IA3: 273-283]

The above example demonstrates how relatives may influence labour ward case management based upon their own experiences of childbirth. The population of women served by unit 'A' appears to have adopted a medical approach as the preferred way to labour. It also demonstrates that lacking clear case demarcation makes it difficult for midwives to resist client choice, even when midwives may believe that making such a choice is not in the women best interests. An interviewee from unit 'B' explained how relatives become stressed when women are in labour:

'... they don't understand at all. And it's difficult to watch somebody that you care about be in pain. And that's hard for the relatives and that's why they keep bringing them back [into hospital in early labour] because they don't know what else to do with them. Because they can't offer any pain relieve. Or they don't think they can. There is the back rub, the paracetamol, trying to talk them round but they don't know how to do that and it scares them.... So it's a bit strange. Often the relatives are the people you have to spend the most time with because they are very distressed. Because once you get the woman under control, ... talk her round and calm her down, it's the relatives who are pacing up and down.' [IB17: 541-552]

Relatives also expect midwives to intervene by either providing pain relief or accelerating labour because they find the situation distressing:

'... I can understand because they see you go in and you do what ever you have to and you've come out, she's still crying. 'You haven't done anything for her. What are you going to do?' [IB17: 560-562]

Although various explanations have been provided for routine vaginal examinations, most interviewees in unit 'A' identified team working and the co-ordinating activities of G grade midwives as the most important influence on assessment. During interview and within the observation phase of the study G grade midwives confirmed that vaginal examination is carried out routinely. This does appear to be an expectation of G grades as I did witness a G grade asking a midwife if she had done a vaginal examination. However, it seems that G grade midwives who manage the midwifery team are expected to account for their clinical actions to consultants on occasions:

'... people were 'She had a second stage of what?' Making me explain myself. And I said well there was no foetal distress, the mother was fine, there was no signs of obstructive labour or anything like that, I said 'it... just, .. took its time.because I knew everything was all right..... I had to explain to the consultant.' [IA10: 512-524]

All interviewees referred to organisational influences on their ability to determine an approach to assessment. Observation confirmed that there are expectations that midwives will carry out some aspects of assessment according to a routine. In the case of electronic fetal heart rate monitoring on admission, discharge assessment and assessment following induction of labour practice guidelines exist in unit 'A' that recommend specific activities. In situations not covered by practice guidelines the factors that influence progress assessment and care for low risk women are less tangible, and are described by interviewees in unit 'A' as a culture that reflects a medical approach as the preferred way of assessing. Pressures on midwives were observed, such as expected forms of record keeping and the need to provide feedback in particular ways that promotes routine vaginal examination. One interviewee suggested that indoctrination into dominant cultural values developed when midwives were learning the job [IA15]. This is highly significant for midwifery education as - while support from a particular mentor was identified as positive by one interviewee while she was developing skills in expectant management - it is feasible that a mentorship system for newly qualified midwives (as well as student midwives) may help to transmit and sustain more

habitual, established practice styles. However most midwives from unit 'A', who completed the questionnaire consider that in their place of work they are expected to provide expectant management for those women who are designated 'normal' or 'low risk'. This is in contrast with work places that have policies for routine assessment. Two interviewees from unit 'B' recognised that while they had experience in using expectant management and were positive about using it for low risk case they conformed to unit policies unless women objected:

'... you get lots of ladies who don't really want VEs and I'm more than happy to look after them if they don't want VEs and have done on a number of occasions when they've been victim of violence, particularly, in childhood or domestic or they've been raped. They don't particularly want you to do a VE. So I'm not that bothered about doing a VE. It's not like 'I need to do it'...' [IB17: 71-78]

One interviewee does not agree that the organisation determines an approach to assessment, as there are no policies for low risk cases, rather she considered that there has been the development of a culture of routine assessment in unit 'A'. As this interviewee uses expectant management whenever possible, one can conclude that she is not particularly influenced by the culture of routine assessment. Three midwives referred to 'client ownership', which reflects some of the issues of hospital working. In this case ownership is associated with professional responsibility to decide what assessment and care is necessary for a particular client. On one shift a group of staff midwives said they had to carry out routine vaginal assessment, otherwise the G grades 'got on to them'. This was supported by a comment in a questionnaire response:

'The 'G' grade expects a regular handover of 'progress' i.e. finding on a 4 hourly VE.' (QA 20)

In addition to the influence of this culture of assessment on midwives in unit 'A' it also appears to be influencing the expectations of clients, and interviewees report that clients ask for vaginal examinations. I did not observe a client or relative asking midwives for specific information about progress, although one mother was encouraging a midwife to carry out artificial rupture of membranes to speed up labour as she thought her daughter would take a long time otherwise. Another client said she wanted artificial rupture of membranes because the labour was lasting longer than she expected. In each of these cases it appears that women want to bring the process of birth to a close as soon as possible. This may reflect a means to an end approach to childbirth, where the experience of birth is not especially valued and the focus for the mother is a product, the baby.

In each of the cases when artificial rupture of membranes was performed labour was proceeding normally for a low risk case and cervical dilatation had increased significantly since the preceding vaginal examination. The justification for altering the process of birth was client choice. However, in both cases birth was taking place during the night and there were multiple family members waiting to witness the birth or to greet the new baby. In addition, in each of these cases the midwife who was providing care for the client had initiated the possibility of artificial rupture of membranes shortly after a previous vaginal examination. Despite midwives asserting that women want to know about progress as cervical dilatation and that they want to have labour accelerated, it is not altogether clear that women are able to choose according to their preference if the implication is that family members are inconvenienced by the course of a physiological labour. While an alternative with which they are presented, or they have learned about from popular culture appears to be a comparable substitute to a physiological birth. It is insightful about the perspective on low risk care in unit 'A' that midwives contemplate the possibility of accelerating physiological labour without clinical cause, use routine vaginal examination and obtain evidence that the physiology of labour is progressing, then at the 'clients request' they are willing to perform a surgical procedure that has a risk of fetal compromise in order to accelerate the process of labour. This implies that normal labour may be considered suspect or inefficient and this perspective is consistent with a biomedical view that childbirth can be managed and improved upon.

While midwives provide contradictory views of the approach of G grades as tolerance to change and resistance to change, what is clear is that G grades on the hospital labour ward are not supporting or leading change towards expectant management. This is probably linked to the way midwifery care is organised. There appears to be evidence that the organisation of midwifery care within unit 'A' is hierarchical rather than being vested in the professional who is accountable for each client. The exception to this is found in community midwifery where the ability and willingness to provide autonomous, justifiable care appears to be in stark contrast to hospital team working. One explanation for hospital midwives accepting constraints of hierarchical working within the midwifery team is that this is preferred compared to boundary disputes between individual midwives and medical staff:

'... if they [medical staff] try to interfere with a midwife, I'll say that midwife will let you know if she needs anything. I'll say 'I'm looking after her, not you!' ... I'm not nasty with them you know, I just hate the doctors to interfere. And no way would I let a houseman interfere.' [IA3: 389-394]

Community midwives are not subject to the same disputes as consultant unit medical staff are not involved in community birth and there is no competition in the location.

What was strange given the general cooperation of midwives in unit 'A', and my explicit interest in expectant management, is that none of the midwives I interviewed volunteered information about colleagues who do not conform to routine vaginal examination. Perhaps this is an area where subversive practice that might challenge the authority of the G grade midwives in their control of the midwifery team is played down and attention is diverted away from it.

(ii) Sphere of Practice

The previous discussion suggests that location of work and seniority and grade appears to have an impact on midwives Diagnostic Orientation. The employing organisation and professional body both influence Sphere of Practice and sometimes there is conflict between the expectations of the two. On the whole midwifery bodies provide guidelines and 'midwives rules' directed at autonomous practitioners, that do not fully recognise the complexity of being a professional midwife at the same time as being an employee. When an organisation adopts a particular position that takes the form of policies, protocols or guidelines these are subject to interpretation by different individual midwives. However, within a system of administrative seniority (the grading of clinical responsibility) it is often the case that professional authority is assumed rather than a collegiate system of professional working. In this way the grade at which midwives are employed has an influence on their Sphere of Practice. The other important influence is the place where midwives 'do the job', as midwives providing intrapartum care in hospital work as part of a team within a hierarchical structure, while midwives working in the community have individual case loads within a team that has no hierarchical structure. It can be argued that grade and place of work are important components influencing the Sphere of Practice of individual midwives.

The G grades that have community midwifery posts each have an individual caseload except for the occasions when they come into hospital for skills updating. Hospital midwives are subject to 'work allocation' during a particular shift and G grades will determine workload and case responsibility according to the human resources available and the needs of the clients on the

labour ward. In the observation phase (unit 'A') a team of four midwives was available on the labour ward each shift, plus a support worker, on all but one occasion. Three G grade midwives, two staff midwives and two bank midwives became part of the sample of 'labours' that were observed. G grade midwives were observed determining the workload and case responsibility of each team member at the beginning of the shift and whenever there was an admission.

Although there was flexibility, negotiating and midwives volunteering to take difficult cases. As expected staff midwives were more likely to be providing individual care and G grades are more likely to be providing a coordinating role, especially at the beginning of the shift, but G grades frequently take responsibility for individual cases. On two shifts, G grade midwives provided more client care than staff midwives. This may have been an effect of having a researcher present.

Staff midwives working night duty commented as a group that G grades were always wanting to know about dilatation, and asking them if they had done a vaginal examination, or why they had not done one. Interestingly this information was disclosed when a G grade midwife was present, and she agreed that this was the case. Managing resources requires an overview of the demands for care, equipment and midwives, from which decisions can be made about prioritising particular circumstances. For example, providing care for women in spontaneous labour may mean postponing planned, non-emergency induction of labour or elective Caesarean sections. This is not a feature of work during the night, where observation was carried out, but in the same way the needs of individual clients may conflict with the needs of the total client workload, including obstetric emergency and surgery. Resource implications of one to one care may explain why almost all of the cases observed and those recorded in case note samples had a vaginal examination on admission. There appears to be evidence that the way that partograms and the white board summary are used in unit 'A' requires that cervical dilatation is prioritised when assessing low risk cases. This also appears to be the case in units 'B' and 'C'. It is the point in unit 'A' where resource implications increase as women in labour are monitored at frequent intervals and are provided with one to one care from an allocated midwife:

'I would need to start her on a partogram, listen to the fetal heart as well every 15 minutes. Whereas if she wasn't in labour well obviously I don't have to do that. I think that's quite crucial and time consuming. And it's our policy isn't it?' [IA4: 182-185]

As staff midwives are more likely to be providing care for individual women in labour and as G grade midwives are more likely to be providing a coordinating role there is pressure for midwives to keep them informed about individual cases. On the other hand, staff midwives insist that they are not often asked to leave a client they are caring for, for example to go to theatre for an emergency Caesarean section. This must mean that with rare exceptions G grades are not juggling resources to such an extent that they would need to know the dilatation of women in normal labour. An interviewee employed in unit 'B' who is currently an acting G grade, explains how it is difficult when she does not know what is happening with each case:

'... doing this this co-ordinating job, ... I find I find it quite hard,...finding out what's happening in the rooms. You're left out there ... sorting out the workload ... I've been in that ... situation [where I have asked the G grade] 'what do you want? Everything's fine, we don't need you. ...I'll come and get you if I wanted something.' But now, since I've been doing this I can see the other side of it and ... well I don't ... know,... what's going on in there.' [IB18: 508-521]

This is an artificial situation created as a result of a hierarchy of midwifery posts. Seniority however, seems to be associated with increased discretion that may reflect time spent doing the job. In the case of senior midwives, discretion to use expectant management of labour may have been achieved on many occasions when the assessment strategy they want to use has been justified and defended with different colleagues and consolidated over time. Eventually justification is no longer necessary, as everyone who may want to challenge expectant management of labour has done so ineffectively in the past. This means that the freedom to use expectant management of labour probably requires less maintenance on a day to day basis for midwives who have been practicing this way for a number of years than is the case for staff midwives. It seems that newly qualified midwives need to negotiate each case or each diagnostic process. This may explain why, of the four midwives in unit 'A' who use expectant management of labour, three are G grade or senior. In addition three of the midwives are not now part of the consultant labour ward team and have left hospital practice. Working in an environment without a dominant culture of assessment may provide sufficient opportunity for reinforcement of expectant management of labour as appropriate and safe for low risk cases. The exception is a recently qualified staff midwife who expects to leave unit 'A' in the future. Interestingly another staff midwife who would prefer to use expectant management of labour is unable to negotiate discretion despite substantial experience in midwifery. This midwife demonstrates low confidence, perhaps as a result of being dominated by a hospital culture of assessment in conflict with her ideology. However despite this midwife feeling strongly about

the type of assessment and care she would prefer to use, she was unable to put together a rationale to support her preferred way of working that was as powerful and informed as the other midwives who have achieved a level of discretion to use expectant management. Two interviewees [IB17, IB19] not employed in unit 'A' described how they were able to and preferred to use expectant management for low risk cases, but in situations where there is hospital policy for regular vaginal examinations they conform to this. It appears that seniority and place of work influences midwives ability to adopt an Expectant Management Style of assessment, possibly linked to lack of confidence in autonomous practice.

(iii) Confidence in Physiological Birth

This reflects the motivation, understanding and capability associated with confidence in caring for and assessing low risk cases. Midwives need to be able to sustain maternal and fetal well being and recognise when progress is normal and also to be able to discriminate between physiological signs and progress and pathological changes. Confidence is also required in the ability of clients to cope, interpreted as a belief that most women have sufficient physical and emotional resources, and have had adequate preparation or can be provided with adequate support during labour to adapt to the process of physiological childbirth.

Motivation

This is associated with a sense of purpose that is oriented towards providing a positive experience for clients that whenever possible should also be empowering for them and that midwives should believe that this is achievable. Appreciating the impact of vaginal examination on women can motivate midwives to provide expectant management, and this is reflected in the participation in learning projects to enhance understanding of physiological birth and capability in a broad range of diagnostic skills.

The Impact of Vaginal Examination for Women

The feminist literature provides evidence that as with other obstetric procedures, vaginal examination is problematic for women because it is unpleasant and intrusive (Clements, 1994; Menange, 1996; Robolm & Buttengheim, 1996). This is especially the case if women have experienced rape or sexual abuse as children but many women with no memory of such events

report negative emotional consequences of such procedures. Midwives themselves, as women, understand the experience of vaginal examination during childbirth, and in relation to family planning assessment and routine cytology screening. Interview respondents express recognition of the unpleasantness of the procedure:

'...a not very pleasant procedure.' [IA7: 685-686]

'... would have opted for no VE's with own births if this had seemed an option.' [IA2: 378-379]

'A smear test is ... no worse than a VE, they are both horrible ..' [IA2: 370-373]

'The young girls are the most terrified of them.' [IA2: 375-376]

Midwives recognise the role that women, including themselves have in perpetuating the frequent use of the procedure:

'Yet I do it to women all the time. It's horrible. It's dreadful that I feel like this and do them. But women expect them.' [IA2: 373-375]

Midwives also recognise that vaginal examination can have a negative effect on the labour experience:

'... it interferes with the woman,... somebody that's ... really distressed, ... a vaginal examination only appears to add to that distress.' [IA1: 61-63]

However, most midwives believe that women accept this intrusive procedure without resistance and one midwife is clear that she has never known a woman refuse to have a vaginal examination:

'I've never ever had anybody who won't have a vaginal examination.' (IA9: 655-656)

This is supported by observation, where women were not observed to object or question the reason for having a vaginal examination. The sample of case notes provide a single entry where a woman refused a vaginal examination, but later must have agreed because there was an entry for dilatation of the cervix made in the record. In contrast with the minority of women who refuse, in interviews midwives emphasise that women are asking midwives to assess progress using vaginal examinations:

'... hate VE's but when ... pregnant ...expected them.' [IA2: 369-370]

'... on occasions ... they'll ask you to do another examination. To see how things are progressing.' [IA9: 663-664]

'Women sometimes ask for VE's. They are more educated and want this information.'

[IA3: 503-505]

'...they want the feedback, they want to know how they are doing. And if anything they would press you into doing it more frequently.' *[IA4: 286-288]*

It seems to be interpreted by midwives as reassuring, that women find vaginal examination uncomfortable but necessary in monitoring the progress of labour. This evidence is in contrast with the views of feminist writers on the problems with the procedure. As a result of the complacency of midwives about using vaginal examination, and the apparent acceptance of the procedure by women, at times during the study I began to wonder if feminist writers were overemphasising the impact of vaginal examinations for most women, or perhaps they were not distinguishing between vaginal examinations in association with surgical vaginal delivery. One midwife considers that in labour vaginal examination is carried out at a time when it is less uncomfortable:

'... if things are reasonably normal you're not doing examinations at a time when it's most uncomfortable. ... at the time that you do them ... with somebody in normal labour, the likelihood is it's going to be the least uncomfortable' *(IA9: 666-673)*

This does seem to make sense especially if the procedure seems less intrusive because the midwife has spent time with the woman during labour. However the women who were observed having vaginal examinations during labour all used Entonox during the procedure, that implies they were experiencing discomfort or they anticipated discomfort. That midwives suggested that women use Entonox, demonstrates that they understand that vaginal examination is painful and possibly traumatic. As vaginal examination was carried out with Entonox administration on admission in each of the women observed, and in all but two of the case note sample within less than one hour of arriving on the labour ward it is unlikely that this is enough time for women to feel less inhibited or to be experiencing minimal discomfort. An interviewee from unit 'B' is clear that vaginal examination, particularly on admission is likely to be problematic for women:

'...you're hardly on even first name terms with them and you do this intimate examination ... and I know that we do do that, it's part of the protocol of the unit to do that but within 15 minutes ... Isn't that scary?.' *[IB17: 449-452]*

Perhaps midwives are not prepared or ready to accept that silence and compliance about the procedure from women hides its the true impact, and that women like midwives are accepting this procedure as a price they pay for potential rewards and status, experienced either as the

recognition that comes with motherhood or from membership of a professional group. Perhaps for women in the West vaginal examination marks a rite of passage. While interview results are clear that women want vaginal examinations, in contrast with this, during observation women were not witnessed requesting this procedure or asking about dilatation.

Providing a Positive Experience for Clients

Women who do not require medical management are in principle able to experience less routine assessment and there is more opportunity to focus on care and a positive experience. However, most interviewees, all of the midwives who were observed and midwives making case note entries in unit 'A' have adopted an assessment strategy of routine vaginal examination in the style of active management of labour that does not reflect confidence in the physiology of birth. Interview data gives the impression that information from external signs are extensively used in combination with vaginal examination, but observation and case note data do not reflect a holistic approach. However, questionnaire responses in the form of diagnoses with justification for wanting further information, demonstrated that in normal cases most midwives did not require information from vaginal examination, and instead they asked for external signs of progress. There is discrepancy between result from questionnaires and data from interview, client records and observation.

It appears significant that interviewees who avoid routine vaginal examination either work in community midwifery or have had substantial or positive experiences providing home birth, sometimes as part of community team midwifery. The failure of interviewees in units 'A' and 'B' to argue in favour of routine vaginal examination combined with the acceptance of alternative information in questionnaire diagnostics (units 'A', 'B' and 'C') suggests that there may be hospital midwives who currently use routine vaginal examinations who are open to adopting expectant management of labour for low risk cases.

Participation in Learning Projects

Interviewees from unit 'A' and unit 'B' who are motivated to use expectant management have all participated in midwifery in situations where vaginal examination is not used routinely for low risk cases. These midwives appear to be motivated to appreciate the process of birth from a women centred position, where the viewpoint of the client is given greater legitimacy within the

Chapter 5: Analysis of Results - Diagnostic Orientation in Labour Progress Assessment
care process. To be motivated to use expectant management midwives need to be confident that this is the best approach when assessing low risk women.

Understanding

The development of confidence in expectant management is linked to an appreciation of the characteristics of low risk cases, how expectant management can be incorporated in to the care of these cases and the exact knowledge in detail of the requirements of policies for labour assessment and care. Midwives also need to understand how the politics of knowledge and power relations have the potential to influence decisions made by midwives and women.

Childbirth as a physiological process that can rarely be improved upon without potential iatrogenesis seems to be a fundamental basis for adopting an expectant management style. Part of the dilemma for midwives is identifying low risk cases where physiology is confirmed, and then understanding how they can provide an alternative form of progress assessment. While questionnaire respondents from unit 'C' recognise that they care for low risk clients who have been selected for care in a midwifery led unit, it is not so clear for midwives from units 'A' and 'B'. Women in unit 'B' are all subject to procedures that require routine vaginal examination, as part of an active management style of assessment while in unit 'A' this is only the case following induction of labour.

Although midwives in unit 'A' understand that they are responsible for the care of women in normal labour, less than half of questionnaire respondents considered that women were designated as low risk cases, and of these only one thought that care and assessment for low risk cases was different.

That most respondents recognised that a difference between expectant management and active management reflects the selective and routine use of vaginal examination was respectively, indicates that midwives believe that they are expected to use routine vaginal examinations. There are indications from the data that regular vaginal examination is required in hospital:

'I would go by the guidelines... It would be different on the community, but because we are in hospital I would initially have to monitor her for half an hour, do an abdominal palpation to assess the gestation, the position of the baby, and while I was doing that to see if she started to tighten while I was doing the abdominal palpation. ... I would only examine [vaginal examination] the woman if I thought she was in established labour.' [IA4: 39-46]

Although questionnaire respondents demonstrate that they understand in principle how expectant management is different from active management there appears to be a lack of clarity in unit 'A' about how midwives can in practice provide an alternative form of care for women, as midwife managed care. There is evidence that midwives in unit 'A' work with women to provide choice and involve them in making decisions using client held notes, a birth plan and by welcoming birth partners onto the labour ward. Women in labour are generally cared for by the same midwife who provides holistic care. However, while care may be client centred, diagnosis of labour and assessment of labour progress is based on medical routine of vaginal examination. Routine vaginal examination is specified in policy for women who have inductions of labour, but in the case of all but a minority of midwives in unit 'A' this routine is being applied when assessing low risk cases. In mimicking the type of care provided by obstetricians midwives are potentially giving women worse care. Medical staff frequently need to manage cases that have already been identified as abnormal or high risk, when the identification of the problem precedes the management approach adopted. Midwives who are caring for low risk cases are not providing active management for diagnosed problems but they are also not adequately monitoring cases either. Confirming effective labour and differentiating between this and deviation from normal is more complex where there is gradual development of a problem during the process of labour. This is why midwives need to use a full range of diagnostic skills and diagnostic indicators in which information from vaginal examination is used within a context of a comprehensive clinical assessment. Using a range of diagnostic indicators is associated with greater diagnostic accuracy (Magil-Cuerdon 2001).

It is possible that there is uncertainty about what constitutes midwifery led care, based on expectant management. It is clear in interviews that midwives appreciate that routine intervention such as artificial rupture of membranes or intravenous Syntocinon is not part of expectant management, although they do continue to use artificial rupture of membranes as a matter of client choice.

There appears to be a blurring of the boundaries between midwives assuming responsibility for low risk cases and continuing to undertake activities that reflect a medical model of labour management. This is not surprising given the lack of clarity on this issue in the midwifery literature. While midwives are required to provide midwifery led care for low risk cases it is

often not clear if this means that midwives will be responsible for providing care according to parameters that reflect a medical model and active management of labour. A study by Mead (2003) has demonstrated that midwives consider interventions such as artificial rupture of membranes and regular vaginal examination suitable for midwifery led care. However, in the maternity unit samples of Mead's study there appear to be policies requiring regular vaginal examination. In contrast with the units in Mead's study unit 'A' has no policies for routine vaginal examination for low risk cases implying that the organisation accepts that expectant management can be incorporated into midwifery led care. However, questionnaire responses from unit 'A' showed that more than half of the respondents think there is a policy or protocol that specifies regular assessment of cervical dilatation, station of the presenting part, electronic fetal heart rate monitoring; along with artificial rupture of membranes in specified circumstances and intervention for 'slow' progress to accelerate labour. Most midwives also thought that diagnosis of labour was based upon characteristics of contractions, plus cervical changes or spontaneous rupture of membranes. These results indicate that midwives believe there are policies and protocols governing their approach to assessment. It appears that they believe they are expected to use active management of labour for low risk cases. The exception to this is that a few midwives who have adopted expectant management for low risk cases understand that routine vaginal examination reflects expectations of the midwifery team based upon custom and habitual practice. This practice does not accommodate the imperative to 'avoid introducing foreign organisms into the genital tract' by 'restriction of invasive techniques'. While 'vaginal examinations are necessary during labour the midwife should aim to reduce these to a minimum and ensure she has a sound reason for embarking on a procedure' (Bennett and Brown, 1989, pp165-166).

It is possible that midwives in unit 'A' are interpreting active management of labour as an intervention for slow progress (failure of dilatation to keep up). The prescribed predictive approach and philosophy of sequential cervical assessment that is an integral part of active management of labour may not be interpreted as medical assessment. If this is the case it may explain why midwives appear to be complacent about routine serial vaginal examination. If expectant management is adopted the duration of labour may in some cases exceed durations accepted with active management. In this case the risk of ascending infection increases if frequent vaginal examinations are used. This provides an imperative to review assessment

approaches. According to McCormack '... vaginal examination is not always the only way of obtaining ... information, and that careful, continuous observation of the labouring mother will enable her [the midwife] to avoid unnecessary vaginal examinations which should be kept to a minimum' (2003, p.445).

Failure to abandon routine serial vaginal examination in the absence of policy requiring it for normal labour may also be linked to doubts about the credibility of other methods, skills and alternative knowledge that may be needed to justify practice according to informal norms within the unit. Midwives were able to use indicators based upon a variety of diagnostic skills effectively within questionnaire responses, and most did not require additional information from vaginal examination. However, midwives working in unit 'A' provide little clinical justification in labour records for undertaking a vaginal examination ('to assess progress'), or for needing to assess progress, instead there seems to be a requirement that they justify using alternative methods of assessment or the reasons why they have failed to carry out vaginal examinations to assess the progress of low risk cases.

While midwives seem to be reassured that women expect vaginal examinations, that women find it necessary to overlook their own first hand perceptions of childbirth, and according to midwives reports, prioritise a measure of progress that is reliant on a midwives subjective assessment seems to be problematic. This may reflect a general acceptance for all things 'scientific' or it may be that the culture of the case study, transmitted in verbal histories, midwives' education, antenatal preparation classes and literature (The Pregnancy Book NHS 2001, Maternity Services Guide Northumbria Healthcare NHS Trust 2002/3, Your Pregnancy-Bounty 2002) distributed during pregnancy, and reinforced during the childbirth experience, sustains a belief among midwives and women that the cervical state is 'the way' to estimate progress.

Perhaps over time and successive childbirth experiences giving birth in unit 'A' women learn that they must accept that dilatation of the cervix is used in midwives decision-making. Women may understand that they are unlikely to have intramuscular analgaesia administered unless they have a vaginal examination. Observation identified that in four cases intramuscular analgaesia was preceded with a vaginal examination, and in two cases women were observed being told they

would be given analgaesia when the vaginal examination had been done to assess progress.

There is evidence that midwives are reluctant to give intramuscular analgaesia unless they know the dilatation of the cervix. For example when comparing dilatation to analgaesia requirement one midwife talks of pain management using 'co-codamol' until the cervix is '5cm' after which women 'may need Pethidine' [IA3: 319-325].

It is also possible that accepting the unpleasantness of vaginal examination for women has to be understood in terms of women's responsibility for family members or competing priorities.

Sometimes women want to know because not knowing is an inconvenience for themselves and their family. It is often the case that responsibilities for children results in women wanting to know what is happening in order that arrangements can be made for childcare. This situation is exaggerated when partners and other close relatives also attend the birth, as the responsibility of each individual increases the pressure to be precise. As hospitals do not allow cigarettes to be smoked (except in designated non-clinical external spaces) women and their birth partners' craving a cigarette may overcome the potential implications of a vaginal examination that presents the possibility of discharge. Observation revealed that more than half of birth partners were cigarette smokers who left at frequent intervals to have a cigarette.

If contractions are less frequent than every 5 minutes it would take a considerable amount of time to use palpation as a basis for assessment, instead a vaginal examination may appear to be a more efficient option in terms of the time it takes to obtain information if women are waiting to go home. It seems that women come into hospital because they need care in the form of analgaesia or reassurance from the proximity of maternity health workers. In many cases they are worried in case they give birth without assistance. This seems to result in women coming into hospital when their contractions are as infrequent as every 10 minutes. In such circumstances even midwives who do not use routine vaginal examination may undertake the procedure to provide additional information for maternal decision-making. However, one midwife who uses routine vaginal examination when women are in labour is not happy about using them without clinical indication that labour has begun:

'I said 'No I won't'. I said 'I will not examine you!' I said 'Why do I need to do a vaginal examination to see if you're in labour.' I said 'I'm not going to.' I said 'You can certainly come down and I'll assess you and I'll do a little trace for you if that's what you want.' I said 'No way I would do a vaginal examination until you're in labour.' [IA3: 258-264]

While midwives may understand that they can diagnose labour without vaginal examination, and use vaginal examination because there is less delay in confirming labour, especially when midwives need to justify the continued presence of women on the labour ward who require midwifery care. Women may not understand this distinction and may not understand that undertaking vaginal examination increases the risk of introducing pathogens to the upper parts of the genital tract, potentially causing infection that develops before or after childbirth in the mother or neonate (Bennett and Brown, 1999). Women may not realise that the procedure has risks and has more importance in many cases for organisational processes than determining their care. At the same time women may accept vaginal examination because it is convenient and they may believe it is more reliable and incidental to the process of childbirth than is the case.

Capability

This is an expression of an individual midwife's ability to deal effectively with the challenge of the job, and in relation to low risk cases carrying out assessment using expectant management. It is comprised of the ability to integrate understanding of physiological childbirth into an autonomous approach to diagnosis that reflects case specific priorities over organisational issues. This is more achievable when midwives have realistic expectations about themselves and also support from co-workers. Negotiating discretion appears to reflect the above attributes as well as effective communication skills, including assertiveness.

Individual midwives gain autonomy with their professional qualifications, but as employees they must demonstrate that they are prepared to maintain standards set by their employing organisation. Other employees in the organisation, some with managerial responsibility for midwives, monitor this ability. While professional practice is primarily an individual responsibility, how midwives contribute to the activities of a team is subject to surveillance. At organisational level in unit 'A' there appears to be an acceptance of the ability of midwives to determine appropriate care and midwives are subject to few constraints in the form of policies and protocols for normal labour. In addition consultant obstetricians and unit managers have negotiated that midwives assume responsibility for normal birth. With low risk women there is little pressures on midwives to assess labour progress in a particular way.

Unlike unit 'B' and 'C' where expectations about progress assessment are formulated by the organisations respectively in policy and care pathways, in unit 'A' there is no documented expectations for assessing low risk cases. Even so the dominant culture of labour assessment in unit 'A' is based upon routines and habitual practice that focus on contractions the state of the cervix (dilatation and effacement) and fetal condition. Results indicate that G grade midwives co-ordinate activities on the labour ward and uphold the culture of the workplace. The extent, to which individual midwives exert their professional autonomy or are given latitude to exercise it, can be expressed as individual discretion. Discretion appears to be related to factors such as reliability and experience, and to be negotiated between individual midwives and the team. Of midwives interviewed most thought they were considered to be reliable and slightly less thought they were considered to be experienced; each of these factors is probably important when negotiating individual discretion. Reliability implies that practice is predictable and trustworthy, and experience implies a greater ability, if not propensity to work in an autonomous way.

In unit 'A' discretion to use expectant management of labour seems to reflect the relationship between the culture of the workplace and an individual midwife's freedom to 'do the job' of assessment according to clinical requirements of the case. Using skills as alternatives to routine vaginal examination within expectant management style of labour assessment seems to be possible if midwives can negotiate with G grades to achieve autonomy, based upon justification for a particular case or developing a rationale for using expectant management of labour for low risk cases. Midwives' ability to confidently put their case and hold their ground will influence the outcome of each negotiation. This applies for each individual case, but regular negotiation may incrementally contribute to the overall discretion a midwife has to make her own decisions about assessment. Interviewees from unit 'A' who adopt an expectant approach to assessment all thought they were considered reliable and most were also considered experienced. The midwife who did not consider herself experienced seemed to use negotiation and justification to achieve a less routine approach to assessment. Two of these midwives worked in community, one in management and one worked in hospital. Each was atypical in their approach to midwifery, perhaps as a result of having had positive experiences in the community while providing holistic assessment and care.

Most of the interviewees from unit 'A' who worked in hospital used routine vaginal examination. Of these, seven midwives appeared to have either high or moderate general discretion. While it seems credible that midwives who appear to have relatively low levels of individual discretion are more likely to conform to pressure from the team of midwives, it seems likely that those with moderate to high levels of discretion are conforming to routine assessment out of choice. Of the sample of midwives from unit 'A' either observed or interviewed, four have substantial experience (three are G grades) and would be expected to have high levels of individual discretion, two would be expected to have at least moderate discretion with low risk cases and one, having recently returned to practice and without a substantive post, is believed to have low discretion. None of the midwives in the sample were observed exercising discretion to replace routine vaginal examination on admission or continuous electronic fetal heart trace with alternative methods of assessment. However, two were observed to carry out artificial rupture of membranes in the absence of a clinical indication or medical instruction.

During interviews midwives who support and use expectant management of labour for low risk cases appeared to be more rehearsed when speaking about their approach to assessment, as well as being knowledgeable about labour. They also appeared more willing to be confrontational and challenging, and prepared to describe, debate and make it clear when I had not understood their point of view during interview, and on one occasion during the observation phase of the research. Despite the discretion that each had achieved all but one of these midwives appeared to have sympathy for the pressure on hospital midwives to use routine assessment. One midwife was fairly impatient and thought that midwives failed to make use of unit guidelines and professional expectations to exert their discretion.

Summary

This chapter has examined the results from the project and explored the diagnostic orientation of midwives undertaking labour progress assessment. Activity style is expressed as two broad approaches, either an active management style or an expectant management style that appears to reflect authoritative knowledge based on technology and nonauthoritative knowledge based on holistic observation respectively. Observation skills appear to be critical to midwifery care. They also provide a more effective means of monitoring labour and deserve to be recognised for

this as equally scientific by practitioners who spend time with women in labour. From this viewpoint intermittent measurement is more relevant for discontinuous care or monitoring clients via numeric information provided by other workers.

Results indicate that the sphere of practice of midwives has an influence on activity style. Junior staff have less confidence in an expectant management style although it is most appropriate for them to use, given their proximity to women in labour. Senior staff in contrast have less proximity to women and therefore uphold intermittent measurement. They do this by specifying particular information in records and oral reports. This behaviour has striking similarities to the preferences and authoritative position of medical staff. Results also demonstrate that in order to develop confidence in an expectant management style midwives require experience other than working on consultant labour wards. They need to develop understanding and confidence in physiology and capability to favour observation skills over vaginal examination. These midwives may then be motivated to resist pressure from the midwifery team and the organisation to use an active management style of assessment.

While a minority of midwives have adopted an expectant management style most have not, despite the evidence that they appear to understand what it involves. This may be related to a failure to demarcate for care rather than location and a lack of opportunity to develop confidence in observation, linked to a failure to experience this type of assessment in practice. The reasons for this are important in order to understand the factors that influence midwives learning at work. These reasons will be explored in chapter 6.

CHAPTER 6: ANALYSIS OF RESULTS - MIDWIVES LEARNING ABOUT LABOUR PROGRESS ASSESSMENT FROM THE CHALLENGE OF THE JOB

This research is concerned with developing an understanding of how midwives's learning develops as a result of undertaking midwifery work. The specific focus of the research is midwives learning about assessment of labour progress in general, and in particular the factors that influence the approach to assessment adopted by individual midwives. A project model has developed to represent the relationships between the assessment method that individual midwives adopt for low risk women, their preferred approach to assessment and the influence of learning to undertake labour assessment while working in contemporary maternity services (Figure 6.1: Midwives Assessing Intrapartum Progress). The project model reflects results from Chapter 4 (Diagnostic Process), Chapter 5 (Diagnostic Orientation) and the results discussed within this chapter (Learning and Working). Results indicate that most midwives adopt an approach that reflects active management and few use expectant management, and this is discussed in previous sections. Understanding relationships between midwives work and learning is important to explain why midwives work in different ways from each other and to understand the working and learning circumstances that are associated with developing ability and confidence in expectant management. The implications of work for the learning process are explored in this chapter within a context of the development of midwifery knowledge and skills in labour progress assessment, in particular the relationship between intrusive assessment and degrees of uncertainty experienced in care and progress assessment. Results indicate that there are differences in the extent that midwives rely on broad based diagnostic information derived from observation or require specific information in the form of internal indicators of progress that are interpreted in terms of statistically derived population norms. This is linked to an individual midwife's confidence in the physiology of birth or their Sense of Coherence or their ability to make coherent sense of observation associated with an expectant management style of assessment. Explanations for the different types of

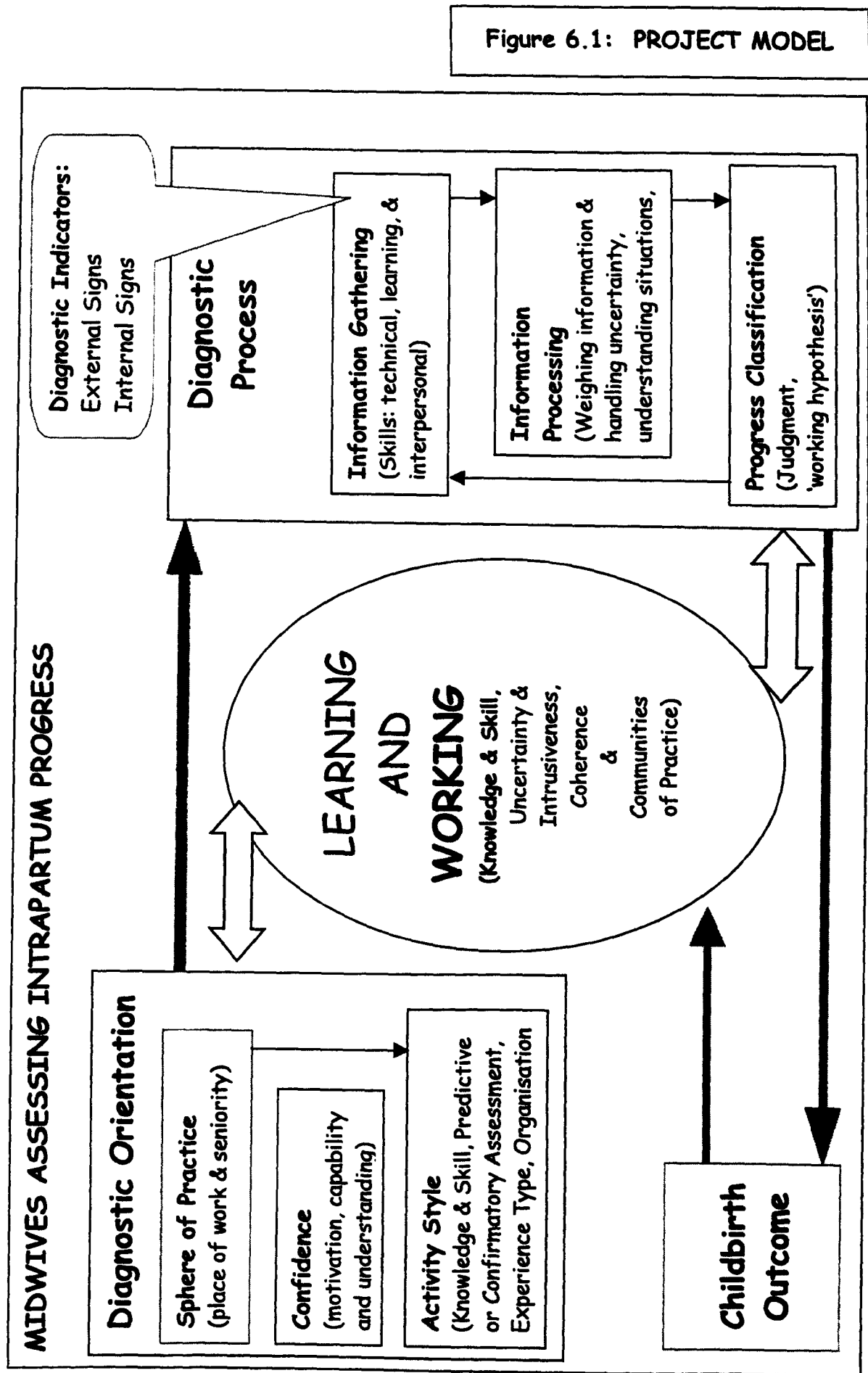


Figure 6.1: PROJECT MODEL

Midwives Learning about Labour Progress Assessment from the Challenge of the Job approach adopted by midwives and in particular the focus by a large number of midwives on learning an active management style of assessment from practice can be located within the communities of practice making up labour ward midwifery teams. This chapter contains subheadings that represent four major factors that influence midwives learning how to undertake progress assessment. They are:

- (i) Development of midwifery knowledge and skill in labour progress assessment,
- (ii) The relationship between uncertainty and intrusive labour progress assessment,
- (iii) Acquiring a sense of coherence for an expectant management style of labour progress assessment, and
- (iv) Communities of practice and labour progress assessment.

(i) Development of Midwifery Knowledge and Skill in Labour Progress Assessment

Results provide insight about how the work of assessing progress, the environment, the organisation and social factors influence knowledge and skills acquisition and the development of attitudes that sway progress assessment. Elements that appear to have an impact on how midwives learn to undertake assessment of progress are opportunities to develop knowledge and skill and influences from organisational and societal factors that have a consequence on developing confidence in the physiology of birth.

Eraut *et al* (1998) have produced a framework for analysing the development of knowledge and skills in employment, which has provided a useful tool for understanding the relationship between results in this study. While Eraut *et al*'s (1998) study and this study are concerned with a relationship between working and learning, the emphasis of this study is specifically midwifery knowledge and skill in labour assessment that is an important part of 'learning to do the job'. There is a difference in the way that analysis is undertaken in this study as Eraut *et al* accepted the perspectives of respondents in the way that they define and limit their job. While in this study depth of personal and

Midwives Learning about Labour Progress Assessment from the Challenge of the Job professional knowledge of the field and work is used in a critical analysis of respondent's interpretation of the work from the perspective of reflective rationality (Altrichter *et al*, 1993). In view of this a model has developed based on analysis of results from this project (Figure 6.1). The model emphasises essentials of the diagnostic process of labour assessment that integrates elements of the framework developed by Eraut *et al* (1998).

Elements from Eraut *et al*'s (1998) framework for learning and working are significant to the diagnostic process that midwives apply to labour progress assessment. Developing particular knowledge and skills (What is being learned) is associated with technical skills, understanding situations, thinking skills, and propositional knowledge. Technical skills (diagnostic procedures, monitoring, technical assessment, following protocols and needs assessment) are especially relevant to information gathering, while thinking skills (problem solving, inquiry skills and evaluation skills) and understanding situations (salient and critical features, perspectives of clients and evaluation skills) are significant to information processing in professional practice and progress classification. Professional knowledge (taught during training for occupation, specialised occupational knowledge, knowledge of systems and procedures) is relevant to all stages of the diagnostic process. Eraut *et al*'s framework also contributes to understanding the processes by which midwives learn (how is it being learned) from 'the challenge of the work itself' and 'consultation and collaboration within the work group'. These can be used to categorise the type of critical learning experiences that appear significant to the results from this study. Some critical learning experiences mirror those proposed by Eraut *et al*'s element 'the challenge of the work itself': critical incidents, learning from mistakes, difficult problems, self set goals, job rotation and special projects. Other elements: listening and watching, building a picture of labour progress, anticipation and atypical case; emerge from the results of this study.

In respect of 'consultation and collaboration within the work group' most critical learning experiences: on-going mutual consultation, special assignments, reviews, audits, debriefing, observing others in action, collaborative teamwork, decision-making and problem solving groups and feedback from colleagues or managers, mirror Eraut *et al*'s

Midwives Learning about Labour Progress Assessment from the Challenge of the Job framework. There are two additional experiences that contrast with the frameworks proposed by Eraut *et al/s* (1998) positive assumptions about collaboration: demarcation boundaries and sharing mistakes. In respect of demarcation boundaries, there is reference to geographical boundaries (in hospital / in the community and on the labour ward /on the antenatal ward) that involve diagnostic criteria seeking. There are also boundaries to be maintained in respect of case responsibility, which midwives enact to maintain professional dominance over individual cases. The team of midwives seems to invest in a hierarchical system of professional working that maintains boundaries in the face of potential medical encroachment in exchange for reduced individual discretion. In respect of sharing mistakes, it appears that junior midwives have difficulties with this, especially when mistakes are linked to practice that is generally not promoted or adopted by the team. There is in addition an undercurrent that suggests that diagnosis can be more precise than is sometimes realistically possible, even when the consequences of less precision is not especially problematic.

Eraut *et al/s* (1998) framework also provides insight into factors that may influence midwives learning about and how in practice to undertake labour progress assessment (FACTORS affecting learning). Confidence is one of the factors identified as significant to learning at work resulting from: 'sufficiency of experience' and the attributes 'coping, help seeking, problem solving and calmness' needed when 'dealing with uncertainty'. How a person is managed also has an impact on learning as 'allocation of work / job rotation / special assignments' and 'manager as creator of micro climate'. These appear to be important, as is an additional group of related factors from the results: accountability, autonomy, and professional discretion, that have implications for how the work of progress assessment is interpreted and the type of learning that results. In particular it is apparent that junior midwives are allocated most of the cases, and as it is unusual for each midwife to be allocated a case, senior staff experience labour diagnostics vicariously, and because of this they have an influence on management that is not responsive to the particular context of an individual case.

The framework provided by Eraut *et al/*(1998) is useful when describing learning as a consequence of engaging in the work of assessing labour progress. However, the

framework does not attempt to evaluate the importance of the work or desirability of aspects of the work in a critical way. An assumption is made that how the job is interpreted and acted out equates with a satisfactory performance, given the circumstances. In this respect the framework has limitations for this project, where learning opportunities and organisational influence are evaluated in respect of the development of an expectant management approach to labour progress assessment that has been promoted since the publication of the Changing Childbirth Report (DOH, 1993) as the optimum maternity service for low risk clients. The perspective adopted for evaluation is legitimised by publications since 1993 that distinguish maternity care from other clinical care provided by the National Health Service (DOH, 2003). This change is linked to increasing consumer recognition, evidence of effective alternative models of maternity care, research and the realisation that current models of maternity services are unsustainable because of projected shortfalls in senior medical specialists (DOH, 2003).

The Maternity and Neonatal Services Workforce Group provided a report to the Department of Health's Children's Taskforce (DOH, 2003) and in it stated that 'pregnancy is not an illness' for a 'predominantly healthy population' that experiences a 'normal life event' as 'the majority of pregnancies proceed normally' and end in an 'uncomplicated labour' (DOH, 2003, para. 1). The report identifies that 5 types of service are provided for birth in the UK: home birth, a 'stand alone' midwifery led unit with no medical cover on site, a midwifery led unit on the site of a District General Hospital / consultant unit with medical cover, a District General Hospital with a consultant service and a specialist maternity unit with high volume neonatal intensive care. In 2000/1 only 4% of total births took place in either a 'stand alone' midwifery led unit or at home. The report is clear that this figure underestimates the role of midwives in all of the service and that increasing numbers of women choose to deliver in 'stand alone' units. Despite this the report also identifies that 'there are a growing number of midwives who do not feel confident about their skills, leading to more defensive practice, which may account in part to the increased medicalisation of deliveries' (DOH, 2003, para. 18).

While Eraut *et al's* (1998) framework refers to 'sufficiency of experience' and 'self set goals', the focus of this project is more specific as it is concerned with midwives skills in an expectant management style of labour progress assessment, required for birth in situations without medical cover. As a result the focus of this project on the development of prerequisite skills takes into account 'experience as duration' and 'experience as type' and is more directive by advocating the goal of 'avoiding routines in labour assessment'. Results indicate that some midwives do focus less on routines of labour assessment and adopt an expectant management style of assessment. There is evidence that this is possible because they have learned to accept a level of uncertainty about labour progress, or to view uncertainty as a part of the process of normal birth, and as a result of this they are able to avoid routine intrusive assessment.

(ii) The Relationship Between Uncertainty and Intrusive Labour Progress Assessment

While it is clear that all midwives in the study make use of a range of diagnostic signs to assess progress in labour and ensure that physiology is normal, the extent to which they rely on different signs varies. Results from interview, observation and questionnaire responses identify differences in the extent to which midwives incorporate vaginal examination within assessment. Vaginal examination provides information in the form of internal indicators of progress and it is proposed that one of the reasons for different frequency of use between midwives is related to the way that uncertainty is interpreted by each midwife in a context of case variability and other contextual factors that influence the way that midwives work.

Vaginal examination is an intrusive investigation and logic implies that midwives would be less likely to use it for low risk cases when they are not troubled unduly by uncertainty about progress or maternal and fetal well-being. The reverse situation, that midwives would be more likely to use highly intrusive procedures when they experience high uncertainty also seems logical. Results support the latter proposition and show that in situations of high uncertainty all fifteen interviewees from unit 'A' describe using

vaginal examination to confirm or exclude suspicions of abnormality or failure to progress. It does appear that highly intrusive practice is associated with high uncertainty. However, there is not so strong a case that low intrusiveness is associated with low uncertainty, as results from interviews include reports of low intrusiveness from only four midwives from unit 'A' when they experience low levels of uncertainty. In contrast twelve interviewees from unit 'A' report practice that is highly intrusive in circumstances of low uncertainty, while only two report low intrusiveness in situations of high uncertainty. Similar results were obtained from unit 'B' with all four midwives operating in high uncertainty/high intrusive, low uncertainty/high intrusive mode, and two reporting that they also operate in a low intrusive mode with either high or low uncertainty when the opportunity presents. This equates with situations where the policy of previous employing maternity units in which they were employed did not require regular vaginal examinations or when women refuse the procedure despite prevailing policy that midwives use it every four hours.

Figure 6.2 proposes a relationship between uncertainty and intrusiveness and the resulting four modes of practice identified when assessing labour progress in relation to the contexts that interviewees have described. In situations of low uncertainty maternal and fetal signs reflect physiological parameters and labour signs reflect normal trajectory, therefore there is no clinical requirement for vaginal examination. Nevertheless intrusive assessment is used (mode 1), as it appears that in this situation midwives do not recognise a variety of observable signs as sufficient evidence to confirm progress and create a perception of low uncertainty, and they resort to high intrusiveness to confirm their diagnosis. Inexperience linked with reduced confidence can explain this for three interviewees (IA4, IA6, IA14) as midwives may be developing their understanding of labour progress early in their career. Senior midwives report that they allocate 'normal cases' to inexperienced midwives and it is probable that mode 1 (low uncertainty/high intrusiveness) is the approach to assessment that is initially expressed by most midwives in contemporary midwifery services. There may be benefits from using the full range of diagnostic information from external and internal indicators because of the potential to accelerate learning about variety of labour trajectories associated with low risk childbirth and about situations that are indicative

Midwives Learning about Labour Progress Assessment from the Challenge of the Job of abnormality. This implies that midwives, with increasing experience will develop understanding and capability to move from mode 1 (low uncertainty/high intrusiveness) to a mode of practice determined by the context of the case.

Figure 6.2: The relationship between Uncertainty and Intrusiveness

Mode 2a	Low Uncertainty		Mode 1
Low Intrusiveness	<ul style="list-style-type: none">• Signs reflect normal trajectory of labour• Maternal and fetal signs reflect physiological parameters• Focus on holistic indicators• Experience of client focussed care• Minimum expectation to be specific about progress	<ul style="list-style-type: none">• Signs reflect normal trajectory of labour• Maternal and fetal signs reflect physiological parameters• Focus on indicators determined by medical model of progress (dilatation of cervix)• Inexperience / experience restricted to regimes of assessment and external pressure• Expectation to be specific about exact progress.	High Intrusiveness
	<ul style="list-style-type: none">• Equivocal signs of labour trajectory, but within time frame for normal case• Unexpected maternal response (extreme or understated) compared with clinical signs• Maternal and fetal signs reflect physiological parameters• Pathology with labour either not suspected or already excluded• Minimum expectation to be specific about progress	<ul style="list-style-type: none">• Delay in waited for signs of advanced / advancing labour• Maternal and or fetal signs of compromise• Suspected labour pathology (malpresentation, cephalo-pelvic disproportion)• Required (professional body and employer) to exclude abnormality or confirm abnormality and refer to obstetrician for medical management.	
Mode 3	High Uncertainty		Mode 2b

Case context determined assessment can be low uncertainty/low intrusiveness (mode 2a) or high uncertainty/high intrusiveness (mode 2b). That all interviewees conform to the latter (mode 2b) is not surprising given the professional requirement for them to do so if there is delay in waited for signs of advanced or advancing labour, suspected labour pathology (malpresentation, cephalo-pelvic disproportion) or signs of maternal and or fetal compromise. However, only four from unit 'A' (IA1, IA7, IA9, IA12)

Midwives Learning about Labour Progress Assessment from the Challenge of the Job operate in low uncertainty - low intrusiveness mode (2a). Or to put it another way only four of the fifteen interviewees from unit 'A' have succeeded in moving from the low uncertainty - high intrusiveness mode (1) approach to assessment when working in hospital.

Transition from mode 1 to mode 2 reflects development of the understanding and capability required to work in an expectant management style. The reasons for the failure to adapt or develop practice in this way seems to be related to expectations that midwives are specific about exact progress, and a focus on indicators determined by the medical model of progress (dilatation of cervix). In the case of unit 'B' a written policy requires midwives to adhere to a regime of vaginal examinations for all cases, while in unit 'A' this is midwifery custom and practice. The situation that predominates is that either midwives are inexperienced in recognising normal progress from external signs and maternal reaction because they are relatively new to labour care or because their experience, which may be of significant duration, has been restricted to regimes of assessment together with expectations that they focus on and report limited criteria of progress. In either case almost all midwives exhibit dependence on vaginal examination.

It is proposed that mode 1 may be an active management style if it incorporates a predictive approach to assessment, based upon the medical model of progress. On the other hand, associated with inexperience, mode 1 may reflect a confirmatory approach to assessment, where newly qualified midwives are testing provisional hypothesis, building cases and learning about normal labour trajectory. This may also reflect a hierarchical system where senior midwives require confirmation of progress from junior staff that does not necessitate their physical involvement in care. Mode 2a and 2b reflect an expectant management style of assessment, where external signs are either recognised as confirmation of progress (2a) or used to diagnose suspected problems from external signs and confirmed or excluded using vaginal examination, a more intrusive assessment (2b).

Transition from mode 1 to mode 2 is probably an essential component of midwives' diagnostic maturation if they are to accurately diagnose labour status and ensure women consult the most appropriate professional, whether midwife or obstetrician. In order to achieve adequate capability midwives must develop insight into and skills by which to recognise variation in maternal and fetal well-being and labour trajectory. They also require adequate understanding of a midwifery model of labour care based upon physiological progress.

Mode 3 is associated with low intrusiveness/high uncertainty, and the uncertainty in this case is with the progress of labour and not the physiology of labour, maternal or fetal condition. Midwives who operate in this mode must be motivated to avoid unnecessary vaginal examinations and be secure in their capability to recognise and manage emerging situations and the knowledge that this type of approach is appropriate for a particular client. Mode 3 also reflects an expectant management style of assessment; in this case motivation to provide expectant management and recognition of the benefits of avoiding vaginal examination is significant. Mode 3 is associated with exceptional maturity and resilience and is only likely to be expressed in contemporary practice when midwives have substantial experience in expectant management, highly developed reflective skills and a client group who opt for birth in which they actively engage in the process of decision-making.

Of the four interviewees from unit 'A' [IA1, IA7, IA9, IA12] and two from unit 'B' [IB17, IB19] who adopt an expectant management style and operate in modes 2a and 2b, four [IA7, IA9, IB17, IB19] also describe operating in mode 3 and two do not. This is not surprising as this mode must be associated with confidence in the physiology of birth, the woman's ability to cope and in midwifery skills and knowledge. It is proposed that this is a feature of experience. Two midwives [IA7, IA9] report that they do not practice in mode 1, even when working in hospital. For these midwives this appears to be related to capability to withstand expectations from other midwives and motivation oriented towards providing woman centred assessment in contrast to establishing common working patterns. Two midwives [IB17, IB19] do work in mode 1 when in hospital, which is related to following unit policy and two others [IA1, IA12] emphasise

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 their role within the labour ward team, while recognising the case specific
 circumstances that women present with; they appear to attempt a compromise because
 of this.

These results from interview provide a more optimistic impression of midwives' ability to handle uncertainty compared with field study data (prospective observation and retrospective case note entries), which demonstrated that midwives on the labour ward of unit 'A' all worked in mode 1. This is in contrast with results from questionnaire vignettes, presented as hypothetical cases for which midwives were asked to provide a diagnosis using external indicators of progress. They were also given the opportunity to consider further information that they thought essential to confirm or test the diagnosis they produced. Vignette 1 and 2 presented low risk cases and described physiological progress and most responses (48/52) were classified as mode 2a (92% and 75%). Vignette 1 had a clearly progressive labour trajectory and extreme maternal reactions that are associated with the second stage of labour. It is often possible to confirm diagnosis from external visualisation of the head or bulging perineum. On the other hand Vignette 2 had progressive trajectory, but there was what can appear as discontinuity of symptoms, not infrequent with multipara and related to increasing flexion and descent of the fetal head. Midwives inexperienced in physiological changes may have been uncertain because of this, and familiarity with a policy or common practice that requires diagnosing established labour also seems to be a factor here and although there was frequent reference to abdominal palpation to determine descent, more midwives would have resorted to intrusive assessment.

Vignette 4 presented a situation where there was the possibility of abnormal labour. There was added complexity because the mother experiencing her first childbirth wanted a 'natural birth' at home. She had been in labour for 16 hours, there were no 'waited for signs' of advanced labour and contractions that had seemed efficient had reduced in frequency and strength. This vignette represented an uncertain situation. While there were no acute signs requiring immediate treatment, the potential of uterine inertia, secondary to cephalo-pelvic disproportion existed. In this vignette most respondents (32/52) were identified as mode 2b practice. They resorted to

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intrusive assessment as uncertainty was linked to the possibility of abnormal labour.

Many of these midwives also wanted external indicators from abdominal palpation. Less respondents (20/52) did not find it necessary to use intrusive assessment and the practice they selected represented mode 3 (39%). A few did not interpret the vignette as potentially problematic and those that did either focussed on the lack of maternal or fetal distress or advocated nutrition and mobilisation to correct potential malposition, both interventions may correct uterine inertia.

Low intrusiveness decreased incrementally within the whole sample for Vignettes 1, 2 and 4 and within the sample of respondents for each unit (Figure 6.3).

Figure 6.3: Responses to Vignettes that are Low for Intrusiveness

<i>Vignette</i>	Unit 'A' (N=21)	%	Unit 'B' (N=15)	%	Unit 'C' (N=16)	%	Total	% of Total
1	19		13		16		48	
		91		87		100		92
2	17		10		12		39	
		81		67		75		75
4	6		9		5		20	
		29		39		31		39

In the case of each unit there is a greater difference between responses for Vignette 4 and either of Vignettes 1 or 2 than there is between Vignette 1 or 2. This is expected if midwives recognise potential abnormality. For Vignette 1 and 2 unit 'B' had a smaller proportion of responses in mode 2a (87% and 67%) than units 'A' (91% and 81%) or 'C' (100% and 75%). This may be explained by the policy operating in unit 'B' for mode 1 practice for low risk cases. Interestingly for Vignette 4 unit 'B' has a greater proportion of responses in mode 3 (39%) than units 'A' (29%) or 'C' (31%). Possible explanations for this difference could be either less appreciation of the potential for abnormality in unit 'B', or an increased focus on client choice, as in the vignette the client had a desire for a 'natural birth'.

Questionnaire respondents, who do not select practice that represents mode 1, are demonstrating an expectant management style, even if this is idealised practice.

Thirty-five respondents (67%) demonstrate this (only suggesting invasive assessment for Vignette 4) of the whole group of fifty-two. A slightly increased proportion (75%)

Midwives Learning about Labour Progress Assessment from the Challenge of the Job is identified when midwives have studied at honours degree or postgraduate level

(24/32). This is more marked (90%) when respondents have completed pre-registration midwifery programmes, and have no nursing qualification (9/10). Of respondents with 15 years experience or less (29), the number selecting expectant management (22) is greater (76%) than the whole group and greater than found when respondents (13/23) had more than 16 years of experience (57%).

Although the results from questionnaire responses seem to demonstrate that for situations of low uncertainty most midwives are capable of responding with assessment that is low for intrusiveness (mode 2a), this is not supported by results from interviews, where only a minority of midwives describe working in this way, or from observation where mode 1 was used exclusively. Questionnaire respondents may be presenting 'a form of idealised practice' (Eraut 1994), and results from observation may reflect rejection of idealised practice as 'unachievable' (Eraut 1994). Eraut (1994) talks about espoused theories as theories that describe the world as professionals would like it to be and contrasts espoused theories with theories in use, which Eraut (1994) proposes are developed separately to cope with the necessity of practice contexts. These theories may not be explicit, but if they are they may not be shared willingly as they may diminish the image of the profession. The intermediate results from interview do not reflect the dualism that Eraut describes; dualism often ascribed to professional education approaches that are accused of teaching and assessing espoused theories. The approach adopted during interviews, where practice was discussed and explained in terms of knowledge based on action may have mitigated against the dualism and helped interviewees to talk about what is generally accepted as implicit knowing. Interviewees did not appear to hide the reality of practice, as they perceived it, perhaps because the researcher is accepted as belonging to the profession with insight into and respect for theories in use.

The exercises in the questionnaire that were based on Vignettes 1, 2 and 4 did not incorporate a context to be taken into consideration, i.e. there was no policy or unit guidelines, family circumstances or birth partners for respondents to consider. In addition the other possibly conflicting duties of the labour ward were not represented.

The diagnostic process presented by respondents could be seen as idealised, but it is based upon practice knowledge in addition to espoused theories.

While it is clear that organisational factors influence the context of care, it is less clear if midwives have robust diagnostic skills. Diagnosis from vignettes required respondents to interpret external indicators rather than using observation and examination skills for themselves. Interviews with midwives from unit 'B' revealed that aspects of skill needed for a thorough abdominal palpation might not be well developed. Perhaps questionnaire responses can be interpreted as the way that midwives would like to practice if they had well developed skills, including observation. Observation results provide the reality of practice for all but a few. Interview respondents do not challenge the reality of practice except for very few midwives who are the exception. These midwives have been motivated to such an extent that they describe that they have found a means to work in ways that other midwives do not report. This lack of achievement may reflect a lack of confidence in practice knowledge concerning physiological birth and in particular understanding, reliant on and linked to sharing in the experience of physiological birth and providing midwifery care.

(iii) Acquiring a Sense of Coherence for an Expectant Management Style of labour Progress Assessment

The results indicate that the organisation of midwifery services operate informal systems to support a dominant view of childbirth as an inefficient, risky process that must be suspected, reviewed routinely, reported in particular ways and often enhanced using surgical intervention. A minority of midwives do not appear to share such a view and their approach to care and assessment reflects expectant management, based on a view of labour as a physiological process. The reasons for midwives applying this different approach to care and assessment reflect the clinical aspects of a case free from identified health problems or negative childbirth history and the requirement that where possible midwives provide a holistic, less interventionist form of care.

In an attempt to identify the reasons for adopting an optimistic or a pessimistic view of birth and the circumstances in which this different approach to assessing progress is exercised, previous sections have examined the similarities and differences between midwives who adopt each approach. Comparing individual opportunities for learning from the job and the development of individual attributes has provided insight. Individuals who use expectant management appear to be confident about the physiology of birth, they have capability in a range of diagnostic skills and underpinning knowledge, and they appear to be motivated to reduce intrusiveness and provide an expectant approach to assessment. These midwives appear to have had learning opportunities that resulted in an optimistic and constructive way of interpreting and approaching midwifery care that is compatible with expectant management and holistic assessment of progress.

Antonovsky (1987) writes about the way that individuals develop a Sense of Coherence as a result of developing coping resources following successful resolution of tension, brought about by stressors. Successful resolution is dependent upon the character of the stressor and it is possible that some stressors may not be pathological but may in fact be salutary. Identifying salutogenic stressors is part of identifying factors associated with the development of coping resources, enacted when individuals are maintaining their 'location on the continuum or moving towards the healthy pole ...' (12). According to Antonovsky (1987) salutogenesis has relevance for understanding health and disease in relation to coping with stressors because it can help in understanding the 'adaptation of the organism to the environment' (13). As a result of adaptation the individual undergoes change and develops strategies for coping with stressors that are apparent as an individual's Sense of Coherence; these are identified as General Resistance Resources (Antonovsky, 1987). Sense of Coherence is comprised of three core components: comprehensibility, manageability and meaningfulness that seem to have correspondence with attributes identified in this study: understanding, capability and motivation. These attributes appear to contribute to a general sense of confidence in expectant management and confidence appears similar to what Antonovsky describes as Sense of coherence.

Comprehensibility is experienced as a perception that the stimuli confronting the individual makes 'cognitive sense as information that is ordered, consistent, structured, and clear, rather than noise-chaotic, disordered, random, accidental, inexplicable' (Antonovsky 1987 p17). When a person is high on comprehensibility she expects future stimuli will be predictable, or if there are surprises, that they are 'ordered and explicable'.

Manageability is 'the extent to which one perceives that resources are at one's disposal which are adequate to meet the demands of the stimuli' (17). If an individual has a high sense of manageability, they will not feel that events victimise them or treat them unfairly. Although troublesome things do happen they expect that there is a good probability that things will work out well. According to Antonovsky (1987, 17) individuals with a high sense of coherence have 'a solid capacity to judge reality' and this outlook means that they can cope and not suffer emotionally.

Meaningfulness is linked with being actively involved in shaping experiences and caring such as emotional investment and commitment. Meaningfulness is 'the extent to which life makes sense' and that 'at least some of the problems and demands' are worth investing in, worthy of 'commitment' are 'challenges that are "welcome" rather than burdens' (18).

Results indicate that the Diagnostic Orientation of midwives within the case study is determined by the existence of attributes that appear to exist in higher levels in a few individuals who use expectant management and that appear to have striking similarity with elements of the sense of coherence concept developed by Antonovsky (1987). That which is described, as confidence in the results is similar to sense of coherence, and understanding, capability and motivation in expectant management are similar respectively to comprehensibility, manageability and meaningfulness (see Figure 6.4).

Figure 6.4:

A Comparison of Sense of Coherence Concept with the Diagnostic Orientation of Midwives in Case Study (Unit A)

Sense of Coherence	Confidence
Comprehensibility	Understanding
Manageability	Capability
Meaningfulness	Motivation

The definition of a Sense of Coherence produced by Antonovsky (1987, 19) provides insight into the attributes of midwives who attempt to use expectant management:

'The sense of coherence is a global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that (1) the stimuli deriving from one's internal and external environments in the course of living are structured, predictable, and explicable; (2) the resources are available to one to meet the demands posed by these stimuli; and (3) these demands are challenges, worthy of investment and engagement.'

There is similarity between this definition of a sense of coherence as a global orientation and the attributes that are identified with midwives who use expectant management. It is probable that a general sense of coherence built up as a result of achieving coherence in a range of areas of ones life is significant in relation to work. This being the case the specific attributes that have been identified with expectant management can be incorporated into a global orientation of a sense of coherence, focussed on providing expectant management (Figure 6.5):

Figure 6.5: A Sense of Coherence for Expectant Management

'The sense of coherence' that midwives have about their role in physiological childbirth 'expresses the extent to which there is a pervasive, enduring and dynamic feeling of confidence that (1) the stimuli deriving from ... internal and external environments' in relation to providing care in labour for low risk women 'are structured, predictable, and explicable' in light of knowledge of the physiology of normal childbirth and available midwifery assessment skills; (2) 'the resources' in the form of capability in a range of skills based upon experience 'are available to one, to meet the demands posed by these stimuli' from a perspective of confidence in physiological birth and ones own and women's ability to cope; 'and (3) these demands are challenges', to which there is motivation to 'invest and engage' and attempt to provide the most appropriate care for individual women.

A sense of coherence is built up as a result of acquiring 'generalised resistance resources' from experiences that exemplify 'consistency', 'participation in shaping

Midwives Learning about Labour Progress Assessment from the Challenge of the Job outcome' and 'underload-overload balance' that are linked respectively to 'comprehensibility, meaningfulness and manageability'. While this is useful in understanding what is shaping the diagnostic orientation of a minority of midwives who use expectant management it is less useful in explaining the diagnostic orientation of the remainder of interviewees. For example one interviewee (IA12) seems to comprehend and be motivated, yet her capability is only partially developed due to a restricted experience base.

Antonovsky (1987) believes that general resistance resources provide all three types of experiences where, inter-correlations among components are high but not perfect. It is possible that an individuals experiences may lead her to being high on one component and low on another, either in general, or in specific situations. It is possible that eight types will emerge if each of the three components of sense of coherence is compared against an expectant management orientation in terms of high or low levels of sense of coherence (see Figure 6.6).

Figure 6.6: Interrelatedness of Sense of Coherence (or Confidence) and Selection of an Expectant Management Style of Assessment for Normal Birth.

Respondent Code	Type	Component			Prediction
		Comprehensibility or Understanding	Manageability or Capability	Meaningfulness or Motivation	
IA1, IA7, IA9	1	High	High	High	Stable
	2	Low	High	High	Rare
	3	High	Low	High	Pressure to move up
IA12, IA3, IA5	4	Low	Low	High	Pressure to move up
IA10, IA11, IA14	5	High	High	Low	Pressure to move down
IA13, IA15	6	High	Low	Low	Pressure to move down
IA2, IA4, IA6, IA8	7	Low	High	Low	Rare
	8	Low	Low	Low	Stable

According to Antonovsky (1987) types 1 and 8 are respectively high or low on all three and pose no problems as this stable pattern reflects that they view the world as either highly coherent or incoherent. In terms of Diagnostic Orientation results indicate that

three interviewees from unit 'A' (IA1, IA7 and IA9) use expectant management of labour for low risk cases and demonstrate understanding, capability and motivation; facilitating physiological birth using diagnostic skills according to case specific clinical need in a way that reflects a type 1 sense of coherence. These midwives appear to have the confidence to deal with the uncertainty of normal childbirth in a variety of birth settings.

In contrast four interviewees from unit 'A' (IA2, IA4, IA6, and IA8) demonstrated low levels of each of the components of Diagnostic Orientation in relation to diagnostic skills and they appear to have the incoherence of a type 8 sense of coherence. This is because the Diagnostic Orientation they adopt for progress assessment is based on a prescribed routine that reflects incoherence about physiological progress in normal childbirth. One midwife (IA8) describes how she was once motivated to provide holistic care and assessment, but she now conforms to a routine that is determined by others. During interview this midwife was not particularly articulate when discussing labour and assessment, and although she appeared to care, she described how she has resigned herself to the dominant mode of practice. Several years ago she had been highly motivated to provide holistic care but during the time she has worked in unit 'A' she has developed reduced confidence as a result of repeated experiences during which she was prevented from making her own decisions about care or assessment. This reflects what Antonovsky (1987) refers to as restricted participation in shaping outcome. She now appears to resent opportunities to increase her knowledge and skills, which may initially not have been highly developed as she has a history of failure at first attempt at registration. From the history of work that she gives this midwife may originally have been a type 3 or 4 sense of coherence when she first came to unit 'A' and without sufficient general resistance resources she may have been unable to respond to pressure to move up to type 1 or 3 sense of coherence. Two interviewees who also appear to be type 8 sense of coherence (IA6, IA4) both seem to be motivated to demonstrate that they can fulfil the expectations of the midwifery team and the 'wishes of the client'. Neither midwife seems to understand how to use other skills to avoid routine vaginal examination or the complexity of client choice. They also experience reduced participation in shaping practice and use routine and restricted

Midwives Learning about Labour Progress Assessment from the Challenge of the Job criteria for assessment, which probably reduces their view of childbirth as chaotic.

One of these midwives had just joined the labour ward at the time of interview and the other expressed a desire to leave midwifery and develop a different career in health care. One interviewee (IA2) has capability and motivation to provide good care, but she experiences an understanding of birth and midwifery as a risky situation. From this perspective of reduced manageability and misunderstanding of physiological processes and diagnostics, meaningfulness is not experienced for expectant management. Instead, this midwife is motivated to prevent expectant management by influencing other midwives to adopt or retain a medical model of progress.

Types 2 and 7 sense of coherence are expected to be rare as high manageability is contingent upon comprehensibility as if things are chaotic and unpredictable it is hard to think how to manage well. None of the interviewees match this type.

Being high on comprehensibility does not always mean that individuals believe that they can manage well. This is the situation for types 3 and 6, which are described as unstable with a strong pressure to change. According to Antonovsky (1987) the direction of movement will be determined by the sense of meaningfulness, which drives the potential to seek out resources. If an individual cares strongly and also understands they will be motivated, without which there is little drive to seek out resources:

High Comp. + Low Manage + High Mean.	→	High Comp + High Manage + High Mean
High Comp + Low Manage. + Low Mean	→	Low Comp + Low Manage + Low Mean

The Diagnostic Orientation of three midwives (IA3, IA5, IA12) appears to reflect type 3 sense of coherence. Two midwives (IA3, IA5) seem motivated and very knowledgeable but they are prevented from responding to pressure to move up to the next type by a long work history where practice was determined by consultant unit management regimes that has reduced their perception of capability and independence and contributed to a feeling of vulnerability. These factors encourage them to adhere to unit policies and the wishes of clients, although they are more inclined to use a broader range of skills and avoid inadvisable examinations or intervention. Both of these midwives are at retirement age.

One midwife (IA12) who is also type 3 sense of coherence attempts to use expectant management and understands the principles of this approach although she has a limited availability of resources as capability as a result of limited experience as time in midwifery. This midwife is highly motivated to provide women centred care and avoid unnecessary procedures and as a result she had developed her understanding. It is anticipated that given an environment where she can gain capability she will respond to pressure to move up to type 1. Unfortunately a negative aspect of pre-ceptorship, to which this midwife is subject is that she experiences scrutiny by midwives who do not support expectant management and who attempt to get her to 'toe the line'.

Two interviewees from unit 'A' (IA13, IA15) appear to be type 6 sense of coherence, as they have extensive knowledge and skills have a low sense of coherence for manageability and meaningfulness and are subject to pressure to move down a type. Expectant management does not have much meaningfulness for these midwives as they focus on the lack of general resistance resources in manageability. This may be because of fearfulness about risks to themselves from client litigation or the organisation. As these midwives are very senior they may have moved down the sense of coherence scale for this aspect of practice from 3 to 6. Each of these midwives appear motivated by defensive practice that reflects a risk assessment process operating in the unit and a knowledge of the potential for litigation claims against them and other midwives on the labour ward.

The importance of meaningfulness is seen in considering types 4 and 5 sense of coherence. Type 5 reflects high comprehensibility and manageability, but understanding the situation and knowing resources are available are of little consequence without caring. The consequence is a developing lack of understanding and a loss of resources. None of the interviewees appear to reflect type 5:

High Comp + High Manage + Low Mean → Low Comp + Low Manage + Low Mean

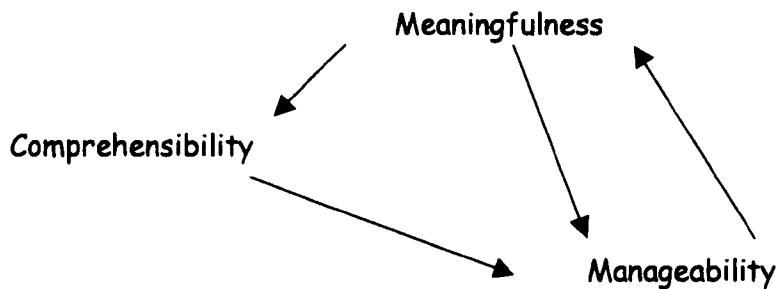
In contrast in the case of type 4, where there is low comprehensibility and manageability, but high meaningfulness it is possible that a search for resources and understanding may be successful:

Low Comp + Low Manage + High Mean → High odds against moving up but it is possible

Three interviewees from unit 'A' appear to be level 4 sense of coherence for Diagnostic Orientation (IA10, IA11, IA14). All three midwives seem to be motivated and are prevented from responding to pressure to move up by confusion about expectations on them from the conflicting perspectives of the midwifery and medical model. There seems to be an element of disorder to their comprehensibility, particularly in relation to differentiating between management styles and accompanying assessment approach. Familiarity with consultant unit management regimes has reduced their perception of capability, meaningfulness and independence and contributed to a feeling of vulnerability that encourages them to adhere to unit policies and the wishes of clients. They seem to be awkward about the way they practice and justify this as due to outside pressure rather than arguing advantages for the way they work. They attempt to use a broader range of skills and limit unnecessary examinations or intervention, for example extending duration between vaginal examinations. Two of these midwives have substantial experience and senior posts. One midwife (IA14) seems to have slightly better comprehensibility but she has a more limited availability of resources as manageability as a result of limited experience as time in midwifery. These midwives appear to be motivated to provide women centred care and it is anticipated that given an environment where they can gain first hand knowledge of and confidence in physiological birth and skills in expectant management, their capability will be realised and they will respond to pressure to move up, first to level 3 and with increasing manageability to level 1 sense of coherence.

Antonovsky (1987) proposes that while all three components of sense of coherence are necessary they do not make an equal contribution. The motivational element of meaningfulness is crucial, as without it being high on comprehensibility or manageability will be temporary; while for someone who is committed and caring the way may be open to gain understanding and resources. Comprehensibility is next in importance as high manageability is contingent upon understanding. However, manageability is important as if an individual does not believe that resources are available, meaningfulness will be reduced. Successful coping is dependant upon the sense of coherence as a whole (Figure 6.7).

Figure 6.7: Sense of Coherence as an Integrated System.



Of the midwives from unit 'A' nine from the sample of fifteen interviewees appeared to be high sense of coherence for meaningfulness (motivation), which Antonovsky (1987) argues is crucial to sustain comprehensibility and manageability. Of these six had low sense of coherence for manageability (capability), which is important, as it is not possible to sustain meaningfulness if resources are thought to be unavailable. However, three of these midwives also had low sense of coherence for comprehensibility (understanding), and as manageability is contingent upon understanding these midwives will find it difficult, but not impossible, if they remain motivated to move up to a higher levels. Only three midwives had high sense of coherence for each of the components.

Six midwives had low sense of coherence for meaningfulness and of these four had low sense of coherence for all components of sense of coherence. Two of these midwives are relatively inexperienced and are focussing on their role within the team of midwives, one is experienced but has become less motivated about expectant management due to difficulties in increasing her comprehensibility or manageability within the unit. One midwife does not appear to understand birth outside of the medical model, and is instead motivated to sustain this approach and limit the manageability of junior colleagues who may otherwise adopt expectant management. Two midwives are high in comprehensibility but are not motivated to provide expectant management and they are low for manageability due to 'fear' of what can go wrong.

When the results for the group of fifteen interviewees from unit 'A' are examined for comprehensibility, manageability and meaningfulness eight are high sense of coherence for comprehensibility and seven are low sense of coherence. Nine have a high sense of

Midwives Learning about Labour Progress Assessment from the Challenge of the Job coherence for meaningfulness and six are low sense of coherence. While there is little difference in sense of coherence scores between comprehensibility and meaningfulness for manageability, most (12) have a low sense of coherence and only three are high sense of coherence. This indicates that of the three components of sense of coherence that Antonovsky (1987) identifies, interviewees find manageability to be the most difficult component when it comes to developing General Resistance Resources. Manageability as a component of sense of coherence is contingent upon understanding for which more interviewees score high. Low manageability therefore cannot be explained as resulting from low comprehensibility, unless there is an element of not comprehending how to balance the conflicting pressure of clinical and organisational prioritisation. In the same way more midwives appear to score high for the meaningfulness component of sense of coherence. It is possible that this may be an artificial result due to midwives' overemphasising what they think the researcher 'wants to hear'. Nevertheless, as results for comprehensibility and meaningfulness are the same it is likely that problems in acquiring General Resistance Resources in manageability are primary; this will be further discussed. However, it is important to recognise that low manageability leads to low meaningfulness and this appears to have implications for midwives in unit 'A'. Antonovsky (1987) argues that individuals who are low sense of coherence for meaningfulness, regardless of the other components are under pressure to move down the levels of sense of coherence and stabilise, rather than move up. The importance of focusing on manageability in order that meaningfulness can be sustained, and the importance of comprehensibility to sustain manageability is central to an individual developing a high sense of coherence.

The development of general resistance resources associated with the meaningfulness component of sense of coherence is related to experiences that exemplify 'participation in shaping outcome'. This seems to be motivation and the other side of this is having the discretion to get involved or determine the type and level of participation. Discretion has been identified as an element of Diagnostic Orientation within the model developed from this study; discretion is a component of capability (manageability) that is part of confidence in physiological birth and confidence in self.

Manageability is the component of sense of coherence influenced by the development of general resistance resources from experiences of 'overload-under-load balance', and it is likely that a major factor in developing manageability is the Sphere of Practice of each midwife. This is supported by the results, which show that only three midwives are high sense of coherence for manageability, and each of these midwives has extensive experience outside of the consultant labour ward. If as Antonovsky (1987) argues individuals who are high sense of coherence for manageability have a 'solid capacity to judge', reality it appears that this either leads to midwives leaving the labour ward team to work in the more isolated mode of community practice, or the capacity to 'judge reality' is increased while working more independently. As results reveal the pressure on hospital midwives from others in the team is substantial, it is more probable that working independently is associated with the development of the manageability component of sense of coherence, and the influence of the team in unit 'A' is to reduce manageability. Results indicate that the pressure to conform and emphasis on risk and potential litigation has reduced the capacity of hospital midwives to maintain optimism about their dealings with clients, about physiological birth, and about their own skills and ability to judge clinical evidence and about their resilience to cope with possible but not inevitable consequences of birth.

Although the Maternity and Neonatal Workforce Group also associate midwives lack of confidence in their skills, increasingly defensive practice and increased medicalisation of deliveries they identify midwives lack of confidence in their skills as the driver towards medicalisation (DOH, 2003, para. 18). This is a different perspective to the relationship between confidence, defensiveness and medicalisation proposed by the results of this study. The rationale for the different conclusion is that medicalisation has been the dominant experience of midwives since the 1970's and therefore preceded midwives reports of lack of confidence. In addition midwives who practice in community environments report less defensive intrusive assessment and less defensive practice. The influence of the threat of litigation and problem-oriented view of childbirth reinforced by risk management appears to have confounded the attempts of some midwives to introduce more observation centred assessment. It is possible that these

two development may be a 'back lash' to counter movement away from obstetrics domination over normal childbirth.

The difference in Diagnostic Orientation between midwives when caring for low risk women is evident according to the location in which they work. As the cases that are of interest to this study are low risk, the clinical stresses for each group of midwives should be equal, or if anything given the distance from medical assistance they ought to be greater in the community. The increased isolation from support in the community is expressed in a quotation from an interviewee from unit 'B':

'... community midwives do very well with their home confinements so why shouldn't we do the same in the hospital where you do have the support system there if you wanted it. .. at home the community midwives they don't have a monitor. They rarely ARM them.... it's not a common practice to ARM the woman early on.. .. women use much less analgesia ... they're more relaxed' [IB17: 386-392]

This isolation from support would be expected to intensify midwives lack of confidence in their skills and result in medicalised birth (DOH, 2003, para. 18) but research respondents do not report this and it is hospital midwives who appear less able to adopt expectant management. According to Antonovsky (1987) the stresses of daily life are less likely to be markedly different between individuals as much as individual's ability to cope and outside of the consultant unit midwives are more able to cope with physiological processes and uncertainty. To an extent, 'knowing the woman' and understanding her reactions is part of this, but perhaps knowing that women often want a home birth to avoid precautionary examinations or procedures is another.

Community midwives may have a higher sense of coherence for comprehensibility about women's preference for home birth and how practice can reflect this, while hospital midwives may have less. In the first situation the group of women and midwives have decided that home is the optimum place for birth. They share an ideology that may increase a sense of coherence. In the second situation women and midwives may be involved in hospital birth because 'most people are' and they are 'going with the flow'. In this situation expectant management has low meaningfulness for midwives. This may be linked to low manageability because they are fearful of birth and want to avoid total

Midwives Learning about Labour Progress Assessment from the Challenge of the Job responsibility for it, or suspect that problems may develop and if they do that their coping resources will not be adequate.

According to Antonovsky (1987, p22) individuals create boundaries to sustain their sense of coherence as 'a generalized long-lasting way of seeing the world and ones life in it' when their world may not be perceived as coherent. When boundaries are set, what happens outside of them is less important. Creating a narrow scope and choosing an area to be concerned about and be interested in can preserve an individuals sense of coherence as long as boundaries do not exclude essential spheres of life (inner feelings, immediate interpersonal relationships, major activities or existential issues such as death, inevitable failures and shortcomings, conflict and isolation). Contracting the scope of boundary concern is a way of excluding demands in a given area that are becoming less comprehensible or manageable. This may explain why interviewees who use expectant management have achieved a strong sense of coherence. It is possible that they have resolved a dilemma of women centred care and pressure from the organisation to provide routine habitual practice by selecting a sphere of practice and client group that is explicitly associated with women centred care:

'... I.. would have done more vaginal examinations looking after someone in hospital than I would have done at home.' [IA7: 32-33]

By opting to work in community practice where boundaries can be restricted by caring for low risk cases, as cases are transferred if problems develop during labour, this can be achieved. Boundaries, once created, can be permanent or temporary, and once a strong sense of coherence develops these midwives seem able to retain a view of low risk childbirth when working in hospital:

'... now, having ... had the opportunity to go in and deliver my own women in hospital, ...when I've been available, I would still treat them like a home delivery.' [IA7: 34-36]

Without the opportunity to create boundaries in relation to case type other midwives may experience their work with low risk women as less comprehensible or manageable. To preserve their sense of coherence midwives may create boundaries that diminish their focus on aspects of practice or scope of concern if they are experiencing reduced comprehensibility or manageability. This may be achieved by failing to demarcate

Midwives Learning about Labour Progress Assessment from the Challenge of the Job women as low risk cases if they are giving birth in hospital and in the case of unit 'A' applying guidelines that are intended for medical cases:

'... a woman could walk through the door and I could be asked to assess somebody in the assessment room that was query early labour. In which case, I would go by the guidelines, because we are in hospital. It would be different on the community...' [IA4: 36-40]

Unfortunately it seems that most midwives do not find a way to preserve a strong sense of coherence and at the same time provide expectant management during labour in hospital:

'I think once they come into hospital, in a way, certain paths are set and I think sometimes it's kind of difficult to go off those paths.' [IA8: 228-230]

When an individual is confronted with tension from events (stresses) that may be noxious, neutral or salutary it is the strength of sense of coherence that determines the outcome. Sense of coherence is influenced strongly by chronic life situations that are enduring, relatively permanent and continuous. Daily hassles, although relatively minor as individual events are representative also of chronic stresses. Such stressors appear to be an inevitable consequence of working in the labour ward team in unit 'A':

'Our unit has few policies for normal labour but there is accepted practice to which the majority of midwives adhere.' [QA 7]

Respondents describe expectations and pressure from senior colleagues to provide specific information:

'... the last VE, what drugs she's had, epidural perhaps.' [IA4r: P2, 190]

'The 'G' grade expects a regular handover of 'progress' i.e. finding on a 4 hourly VE.' [QA 20]

that requires the use of regular invasive assessment and criticism and coercion if midwives resist:

'It was very much 'the 'G' grade is in charge, their word is final'. The 'E' grades, which is what I was, we had to... toe the line.' [IA8: 77-78]

This can be interpreted as inadequate role opportunities. According to Antonovsky (1987) General Resistance Resources - Resistance Deficits are built up, as resources

Midwives Learning about Labour Progress Assessment from the Challenge of the Job and orientation towards coherence and independence are two of the most important social-environmental resources. Conversely a lack of emphasis on these is a significant source of stress and may result in a decision paralysis, expressed as a dependence on guidance from senior staff and the acceptance of rules. Situations associated with low levels of manageability that may be linked to underload - overload imbalance. This may be particularly the case if staff midwives are allocated cases and senior midwives do not have their own cases to focus on and be distracted by:

'... I can still have two patients but no one else has anyone else, has any other patient. The other day I had 100% of the patients, I had two patients.' [IA8: 555-557]

Interviewees who adopt expectant management for low risk cases appear to exhibit characteristics similar to individuals who have a strong sense of coherence, who seek a balance between rules and strategies, and who have confidence that sense can be made of experience. In terms of manageability these individuals will consider that resources will be available to deal with situations. Resources that are one's own or that are controlled by colleagues whom can be counted upon and trusted. This is in contrast with individuals who hold fast to rules and who according to Antonovsky (1987) have a ridged sense of coherence. This may be associated with a weak sense of self and a sense of identity as a midwife that is adhered to rigidly in order to allay anxiety, as with low manageability comes a paranoia that unfortunate things will happen:

'... if the[y] ... don't know what's going on and they have no regular updates then they do get agitated.' [IA8: 107-108]

If Antonovsky's (1987) position is correct it may explain why individuals who have a strong sense of coherence are more likely to be flexible and experienced. However, senior midwives seem just as likely as juniors to have weak sense of coherence that also appears ridged. This can be explained by the concept of secondary control, in which individuals exhibit unfulfillable expectations and identify with powerful others. This process promotes vicarious secondary control in order to enhance one's sense of strength and power. This may provide an explanation for senior midwives on the labour ward having apparently internalised the discourse on labour progress favoured

Midwives Learning about Labour Progress Assessment from the Challenge of the Job by medical staff and why they enforce this approach to labour assessment and management with junior colleagues:

'... some ... try and tell you what to do, try and interfere [with the birth process] instead of just letting things ...happen naturally. They will try and tell you what to do.' [IA8: 259-261]

There may be an interim stage that is experienced by junior staff, who may prepare for future events by 'finding reasons and purpose in events that can not be altered' (Antonovsky 1987 p53). Once midwives have found reasons and purpose for regimes of assessment used in obstetric cases they may transpose these to situations and to 'midwifery cases' where they are not required and where the reason and purpose cannot be validated by a midwifery model of care or the particular client context. However, midwives present a positive view of the benefits of the medical model to women, and persuade them to conform, while at the same time satisfying themselves that they are given clients choice:

'I think if you gave a woman the explanation of 'do you want a full VE or would you like to be left longer' I'm sure quite a lot of them would say they would be quite happy to be left. Because we always express it in ways that it is to their benefit, 'it is best for them to have this done'. [IA8: 236-241]

It can be interpreted as a problem for midwifery practice that nine of fifteen interviewees from unit 'A' were unable to match the reason and purpose of assessment activity to the particular context of low risk cases. It appears that engaging in labour care in hospital does not equip midwives with the comprehensibility or manageability components of sense of coherence in relation to expectant management. This has implications for meaningfulness as it cannot be sustained in isolation and without meaningfulness, an individual will not attempt to be 'involved as a participant in shaping one's destiny [in midwifery practice] as well as ones daily experiences' (Antonovsky 1987 p18) which will have consequences in a midwives ability to identify and provide for individual women's needs, particular in providing an alternative to the medical model of care and an active management style of assessment for low risk women. The role of work experience and in particular the team of midwives providing labour care in shaping midwives learning appears to be of particular importance to this study.

(v) Communities of Practice and Labour Progress Assessment

Communities of Practice have been proposed by Wenger (1999) as learning communities that exist within organisations as a site of participation and reification of meaning associated with the job. In the case of midwives on the labour ward, the community of practice is associated with midwives participating in a process of negotiation around, amongst other things a definition of the role of midwives on the labour ward. According to Wenger (1999) experiences of participation and reification gives an individual an experience of meaning. This proposition has parallels with Antonovsky's (1987) view that individuals must develop a sense of meaningfulness through participation in shaping outcomes. From engaging in participation and reification experience becomes manifest as competence, not just to perform tasks or possess particular information or skills; the usual understanding of competence promoted by professional organisations. Competent membership of communities of practice incorporate additional criteria (Wenger, 1999, p137):

1. *Mutuality of engagement - the ability to engage with other members and respond in kind to their actions, and thus the ability to establish relationships in which mutuality is the basis for an identity and participation*
2. *Accountability to the enterprise - the ability to understand the enterprise of a community of practice deeply enough to take some responsibility for it and contribute to its pursuits and to its on-going negotiation by the community*
3. *Negotiability of the repertoire - the ability to make use of the repertoire of the practice to engage in it. This requires enough participation (personal or vicarious) in the history of a practice to recognise it in the elements of its repertoire. Then it requires the ability - both the capability and the legitimacy - to make this history newly meaningful.'*

In this way it is by its processes of participation and reification that a community of practice establishes what it is to be a competent participant, an outsider, or somewhere in between. In this way a community of practice acts as a locally negotiated regime of midwifery that is recognised as competent participation in the practice. While a regime of competence may not be static, and knowing something new or discovering something may be interpreted as competent participation, such local negotiation may explain the apparent resistance to ideas introduced from outside of the practice community if they

Midwives Learning about Labour Progress Assessment from the Challenge of the Job are associated with different ways of working. According to Wenger (1999, p 139) 'a two-way interaction of experience and competence is crucial to the evolution of practice.' Sometimes experience and competence are out of alignment, for example when new midwives join the labour ward team. In this case competence may drive experience, when in order to achieve the competence as it is defined by the community, they transform their experience until it fits with the regime:

'I think it takes time... to fit into the team, ...not long ago when one of the midwives wasn't playing the game. She was doing her own thing, and wasn't coming back and legitimising what she was doing, and why she was doing it. Not even in the informal conversations that go on, and because of that she was seen as an outsider, and they didn't like it. They pushed her to one side. She wasn't playing the game. But she was caring for her woman, in a way that she felt she needed to care for her woman, but didn't fit in with their model, so they weren't suited by [happy with] her'. [IA1r: 331-339]

Sometimes midwives may have experience that falls outside of the regime of competence of a community to which they belong. The above quotation reflects this situation but it is possible that a midwife may find a way to change the community's regime to include their experience in what is considered competent. In this case they would need to engage with people in new ways and transform relations in order to be taken seriously and redefine the enterprise. If they have enough legitimacy they may be successful, change the regime of competence and create new knowledge:

'... it's also about the midwife and her ability to articulate her decision making. With the other staff. And as I said, to legitimise her workload. And if she is good at doing that, then she may be less likely to be made to gather hard data, via a vaginal examination, because she is respected by her colleagues for being right, or seeming to be right and being a good judge of women's progress in labour...' [IA1r: 309-314]

'... I think my experience and possibly my reputation and experience, I don't know, I don't know if that's right, I would have to ask other people, but I don't think I would be challenged 'why haven't you done a vaginal examination?'" [IA7: 200-204]

This two way interaction of experience and competence is considered by Wenger (1999) as essential for the evolution of practice and for individual and collective learning. It is interesting that the community of practice on the labour ward in unit 'A' seems to have negotiated an acceptance of a different type of practice by some individuals. According to Wenger (1999) communities of practice can accommodate variation. In addition a regime of competence can be varied to accommodate different views of knowledge by 'taking advantage of partiality enabled by mutual engagement and not requiring everyone to share in the understanding of everything'

(139). This may explain why most of the midwives working in hospital do not appreciate how expectant management can be experienced in practice, because they have not experienced participation except at a level of principles based on espoused theories about ideal practice for physiological labour in the form of expectant management. Although midwives are now and have always been accountable as individuals to clients, professional bodies and the organisation, in unit 'A' midwives have also apparently negotiated accountability to other members of their community of practice. For most midwives this seems to exceed other forms of accountability. Unfortunately greater emphasis on individualised care has produced a tension between competence based on participation and reification experienced within their community of practice and ideas of competence that have currently been experienced as participation by only a few members of the community.

This is important as Wenger (1999) identifies that meaning is negotiated about practice through a process that includes participation and reification, that together form a duality, fundamental to human experience of meaning and the nature of practice. This meaning is at one and the same time historical, dynamic, contextual and unique. To model this idea Wenger (1999, 55) presents an example from his research of the specific way that a claims processor looks at a claim form. This can be applied to the way that an individual midwife looks at a labour record (Figure 6.8).

Wenger proposes that 'participation refers to a process of taking part and also to the relations with others' (p 55). This action and connection can involve relations that have various types and levels of interaction that can be '... conflictual as well as harmonious, intimate as well as political, competitive as well as cooperative' (p56). Participation shapes the experiences of member of the community while transforming the community in ways that extend beyond engagement in practice to become a part of an identity. Reification is a process by which communities of practice 'project .. meanings into the world and then .. perceive them as existing in the world, as having a reality of their own' (Wenger, 1999, p58).

Figure 6.8: Negotiation of Meaning in Practice.

Understanding a labour record 'requires a very specific way of looking at' a record sheet. 'The ability to interpret' a labour record 'reflects the relations that both the record and the midwife have to 'a particular practice'. The midwife 'contributes to the negotiation of meaning by being a member of a community and bringing to bear her history of participation in its practice. Similarly the record contributes to this process by reflecting aspects of practice that have congealed in it and fixed in its shape'. The midwife as 'a member of a community of practice embodies a long and diverse process of participation. Similarly the' labour record as an 'artefact of certain practices embodies a long and diverse process of reification. It is in the convergence of these two processes in the act of' interpreting the labour record 'that the negotiation of meaning takes place'.

The significance of reification is that points of focus are created around which meaning is negotiated and organised, as if the reified were real. According to Wenger (1999, p59) all 'communities of practice produce abstractions, tools, symbols, stories, terms and concepts that reify something of that practice in a congealed form'. In particular Wenger (1999, p59) proposes that 'having a tool to perform an activity changes the nature of that activity.' There appears to be evidence that using a partogram to record labour progress changes the nature of progress assessment by focussing midwives' attention in a particular way to the graph of progress - based on measurements of dilatation of the cervix. Understanding progress in terms of measurements of the cervix leads to demarcated phases of labour (established or fully dilated) that are more precise and regularised than the reality of a labour trajectory. Wenger (1999) discusses the double edge of reification. The benefits of the succinctness, portability, persistence and its focussing effect and the danger of a tool becoming a substitute for deep understanding and commitment for what it stands for, its inertness that can ossify activity, a procedure hiding broad meanings in blind sequences of actions and the knowledge of formula producing an illusion of full understanding of the processes described. This adds to the understanding of results from this study where focus on more 'measurable criteria' was found (contractions 2 in 10 and moderately strong, cervix 5cm and effaced, station -2) that can be replicated by different practitioners, that are concrete once written down or entered on a graph to provide

a visual representation. Yet the tool in the form of a partogram and its associated formula for anticipating labour progress as dilatation has become a substitute for understanding the process of birth. The inertness and brevity of the partogram and the summary labour board have acted to ossify activity around procedures with sequences of actions that imply understanding, but in reality replace deep understanding and commitment to care in labour. According to Wenger (1999, p62):

'Reification as a constituent of meaning is always incomplete, ongoing, potentially enriching, and potentially misleading.'

As participation and reification form a duality of experience of meaning in communities of practice 'to enable one it is necessary to enable the other' and while they 'come about through each other, ... they can not replace each other' (62). Given the 'useful illusion' created by reification a trade-off for communities of practice must exist around 'what is reified and what is left to participation' (p62). If everything is reified then there is little opportunity for shared experience and active negotiation and if everything is unreified then specifics and diverging assumptions may not be uncovered. When there is imbalance, Wenger argues that adding more participation to participation or more reification to reification will not help or correct shortcomings. In addition 'increasing the level of participation or reification ... will tend to increase the requirements for the other. [This is because] reification always rests on participation ... [and] participation always organises itself around reification because it ... involves artefacts, words and concepts that allow it to proceed' (67).

Redressing or anticipating weaknesses or what may be perceived as errors in midwives decision making, with more procedures can only be effective if there is an imbalance in the community of practice of the type that participation exceeded reification. There is no evidence to suggest that this is the case in unit 'A'. On the contrary there appear to be evidence that the ability of midwives to participate fully is limited by reification. In such circumstances the consequence of further limitation as a result of additional policy has the potential to limit the experience of meaning and learning. An example of this is provided in a development in practice introduced near the beginning of this project within which midwives were to carry

out assessment on women when they arrived on the labour ward and if they were not in labour women would be encouraged to go home. Previously medical staff had made this decision and women often waited several hours for the decision to be made when the doctor had time to attend and carry out an examination.

Low risk women in labour only need to be in hospital when they are in need of care or when delivery is imminent. It can be argued that what constitutes labour has been reified as frequent, regular uterine contractions, but understanding a need for midwifery care in labour is subject to more implicit understanding that requires an experience of midwifery participation. The response of the maternity unit to this change in practice was to focus on previously reified aspects of knowledge and to produce a policy, such that when women are in established labour (cervix dilated 3cm plus) they should not be discharged. This is reified labour according to a biomedical formula, which indicates when dilatation rate will accelerate. It does not however address the possible need for care before the cervix is 3cm dilated or that the model of dilatation is based upon populations rather than individual rates and that it is unreliable after the first birth. Arguably when faced with a change in practice the community required an experience of participation in this change and attempts to reify practice further has moved the focus of practice away from care and towards procedures concerned with measuring and recording cervical dilatation. Although midwives are able to justify a need for care irrespective of dilatation, practice has become focused and organised around this and the procedure used to obtain the information.

One can argue that vaginal examination was carried out by medical staff when they made decisions about discharge and midwives are doing likewise; however, midwives have the potential to wait for signs during the process of care and observation that medical staff did and do not. In reality prior to medical staff assessing women before discharge a midwife providing care had already arrived at the decision over a considerable time that women were not in labour, otherwise they would not have required the doctor to come and discharge the client. It is possible that vaginal examination has assumed importance to midwives in unit 'A' because it was already

Midwives Learning about Labour Progress Assessment from the Challenge of the Job reified as an essential medical procedure for episodic intervention, and it provides information on labour process that can be recorded, and that has an illusion of being more concrete and less open to interpretation than a description of signs or symptoms.

This procedure and the resulting information appears to afford midwives a level of security about their own position, as it did for doctors, even though it may be of less relevance for determining care. Using vaginal examination has become associated with a form of protection against unforeseen developments; this is similar to the practice of crossing the road at the pedestrian crossings. While a pedestrian is vulnerable when crossing a road an added sense or illusion of security is associated with crossing in a zone demarcated for that purpose. This illusion of security is often associated with failure to monitor approaching traffic, as would be the case if pedestrians were crossing at another point in the road, a behaviour that is just as important at crossings. However, what the crossing does is make it clear, that if there is an accident, the motorist, not the pedestrian is a fault. Even when a crossing fails to give the protection that is expected by the pedestrian it vindicates their actions and transfers blame to another. Results indicate that in this way vaginal examinations are used to provide protection for the midwife. However, a focus on the procedure vaginal examinations as the source of information on labour progress as dilatation of the cervix that can be documented as an investment in future self-protection by the midwife, at the time of its use it may be contributing little to the care process or to midwives learning about labour assessment from participation in the practice of assessment.

Procter (2000) identifies emphasis on tasks (vaginal examination) and blind obedience to the decisions of others (how labour and legitimacy for receipt of care can be identified) as a care- as duty paradigm. This is in contrast with ethical decisions that can be reached as a result of continuous caring that provides nursing (and midwifery) with a unique perspective based upon a legitimate alternative source of information. In contrast with isolated and fragmented information that is typical of episodic interventions or investigations, midwifery knowledge can also reflect an

Midwives Learning about Labour Progress Assessment from the Challenge of the Job understanding of the situation as a result of engagement. By prolonged engagement midwives can 'bear witness' (Procter, 2000, p99) and develop understanding that is fundamental to successful resolution of decisions. Importantly, Procter suggests that 'to deny carers any involvement in decision making while expecting them to bear witness to the care creates a spoilt identity for nurses [or midwives] in which their self-esteem can only be preserved at the patients expense' (2000, p99). This is particularly identified in situations where there is uncertainty about the client situation and regulation. If needs for self-respect and self-esteem are not met, then the need to control will lead to a splitting off from the more supportive aspects of the role and lead to a blind following of the demands of the system. This effect matches what Antonovsky (1987) termed predictive secondary control.

While Procter (2000) discusses the interplay between caring and bureaucracy the results of this study indicate that regulation is produced by the midwifery community of practice in unit 'A' and produced at organisational level and reinforced by the community of practice in units 'B' and 'C'. This may be an expression of what Wenger *et al* (2002) recognise as a downside of communities of practice who may among other effects limit innovation and reflect narrow unjust prejudices of their society. In the case of labour diagnosis this is being limited to a fragmented medical appreciation of progress that persists and dominates Western maternity services and discourse. In this regard communities of practice can become an obstacle to learning and practice, or a particular aspect of practice may stagnate. According to Wenger *et al* (2002) things can go wrong if members fail to develop trust, in a tight community implicit assumptions can go unquestioned and there may be unwillingness to challenge, intimacy may create a barrier to newcomers and reluctance to critique each other. Wenger *et al* argue that the strengths of a community that support learning, in extreme cases frequently become its weaknesses, and they propose that this can also produce an ideal structure to avoid learning. This may be because qualities that are essential elements have become pushed out of balance. The results indicate that in unit 'A' the balance has been pushed over in favour of reification, presented as policy that can be reinforced as a system of vicarious secondary control

Midwives Learning about Labour Progress Assessment from the Challenge of the Job by members of the community of practice when challenged by newcomers or critique develops within the established community (Antonovsky, 1987).

Observation did not reveal critiquing of practice or discussions of practice outside of questioning each other about whether procedures had been carried out and what evidence of progress there was. The midwifery team seemed to be very close knit, confident and familiar with the expectations on them; unless I asked them to justify their decisions or their practice when they became hesitant and doubtful about the certainty they had expressed previously. My evaluation of the situation was that there was very little time spent participating in discussions about practice because time had been invested in providing a system of rules that midwives were expected to follow and that the community of practice reinforced, especially by the actions of senior midwives in the team. The evidence suggests that during the research period the community of practice in unit 'A' was investing in and maintaining an active management style of labour progress assessment. The reasons for this seem to be related to the value of vaginal examination as a source of 'credible' evidence for defensive record keeping, in case of boundary disputes with medical staff and to provide a method by which senior staff can engage vicariously in labour progress diagnosis and decision making, increasing their credibility when reporting to medical staff. Unfortunately, investment in an active management style has limited the opportunity that midwives have for engaging in and learning to use an expectant management style of labour progress assessment. As they are denied autonomy when making decisions about progress and care, or even which methods of assessment are required, most midwives will experience a spoilt identity as a midwife, from which their self-esteem will only be retrieved at the woman's expense (Procter, 2000). Active management seems to offer the opportunity for midwives to regain their self-esteem and gain status, gaining control of clients without apparent medical involvement.

Summary

Previous discussion has explored the development of practice knowledge in relation to progress assessment and proposes that it is in the extent of integrating uncertainty within an understanding of the physiological process of birth that midwives can express variation in practice. This is manifest in the frequency and immediacy with which midwives resort to more intrusive forms of examination. Accommodating degrees of uncertainty is associated with styles of assessment, with which progressive experience may develop from an active management style to an expectant management style. Antonovsky's sense of coherence model explains the development of generalised resistance resources - resistance deficits from the stresses of work. Salutory experience is associated with generalised resistance resources apparent in increasing meaningfulness, manageability and comprehensibility in relation to aspects of individual coherence. Results from this study indicate that few midwives have attained manageability in respect of expectant management and those that have describe experiences working outside of the consultant labour ward team to which they attribute the development of capability (manageability) in expectant management. It is proposed that the environment of work on the labour ward, with its focus on technology and the hierarchical distribution of power within the midwifery team operates to limit or prevent most individuals from achieving manageability for physiological birth and expectant management via participation in communities of practice. While communities of practice are associated with the development of knowledge and skill in practice there are negative consequences associated with downsides. In the case of unit 'A' the community of practice appears to have foregone the autonomy of individual midwives within a system that increases the credibility of senior midwives. The credibility of senior midwives is in part linked to upholding an active management style of labour progress assessment and measures of progress that have been reified by the community, and which provide an illusion of reality to which they hold on. Unfortunately reduced participation in decision making about client care and reduced autonomy produces a 'spoilt identity' for midwives. Self-esteem that is lost in relation to autonomous decision-making can only be retrieved at the expense of the client. In this case by midwives focusing on technical skills and efficiency rather than observation and care.

CHAPTER 7: CONCLUSION AND IMPLICATIONS

Conclusion

The dominance of the medical model and its associated technologies demands of midwifery and midwives a self-aware approach to practice that can complement the inherent physiological strengths of the normal birth process and know when to use holistic skills and technology appropriately.

It is not clear whether many of the midwives in this study perceive that technology influences their approach to labour assessment perhaps because they associate technology and medicalisation with equipment and procedures used by medical staff rather than with the same procedures and knowledge that they continue to support and use. Jordan (1997, p. 65) in contrast with the view of midwives in the study, identifies that technology exists not only as *'a collection of complex gadgets and machinery but also as the methods and techniques developed in the communities of practice that use these technologies'*. Jordan has not developed this view in isolation as she has based it on the definition adopted by the World Health Organisation at an international conference on primary health care in 1978 (1997, p. 76). What is interesting about technology is the role it plays in giving meaning in and through social interaction, and how it is appreciated for symbolic value as well as use value. Technology is used to express power, expert status and plays a part in legitimising *authoritative knowledge* as the way things are while devaluing *nonauthoritative knowledge systems* (Jordan, 1997). *Nonauthoritative knowledge systems* recognise birth as a normal process than can be enhanced using women centred care and observation. However, each element of this perspective is suspected and devalued by *authoritative knowledge* and in addition the scientific value of observation upon which it is centred, is trivialised and considered lower status and less reliable than technological measurements such as metric centimetres of cervical dilatation and station of the fetal head. That a technological approach is viewed as *'natural, legitimate and in the best interests of all'* is a *'misrecognition'* of what is *'socially constructed, relative and often coercive'* (Jordan, 1997, p. 57). Experiences for women under technology are such that *'natural responses are systematically erased and reconstructed'* and *'the woman is led to collaborate in the*

violation of her body, the abnegation of her self, the misrecognition of her own interests' (Jordan, 1997, p. 74).

Results demonstrate *misrecognition* of the value of a technological approach that is supported by local policies, guidelines, care pathways and cultures of practice that midwives describe. While midwives in the study demonstrate awareness of a range of diagnostic information available to them, most are not prepared in practice to base diagnosis and care on *nonauthoritative knowledge*, instead they use technology in their diagnosis and weigh evidence such that technological information is prioritised. Women's participation in this process is that of compliance and conceding their first hand experience of labour or need for care, that are reconstructed by technology to which they submit experiencing intrusive procedures that may also augment the birth process or improve on their own physiological, psychological and social measures to cope with discomfort and transition.

When caring for women without medical or obstetric problems choice for midwives lies between adopting an expectant management style of assessment that relies on observation and uses technology only when required or an active management style of assessment that adopts technology and invasive techniques routinely. This choice is influenced by midwives' philosophical position on birth as a physiological process.

When undertaking progress assessment it appears that it is in the extent of integrating uncertainty within an understanding of the physiological process of birth; that is either viewed as a natural process that is usually unproblematic or a natural process that is inefficient and dangerous that differences exist in realising and prioritising external or internal signs as diagnostic indicators. Variation in assessment appears as a feature of the different assessment styles or Diagnostic Orientation adopted by individual midwives and how this is expressed has implications for the way in which individual midwives carry out the Diagnostic Process, using either an active management or an expectant management Activity Style that appear to reflect *authoritative knowledge* based on technology or a combination of *nonauthoritative knowledge* based on holistic observation and technology respectively. Only a minority of midwives have adopted an

expectant management style, despite evidence from results that most understand what it involves. Those that do have learned to deal with the variation of normal labour, to focus on physiology and individual woman's experiences, deal with uncertainty and to recognise situations where further information is required. In contrast midwives who are only familiar with the criteria of active management might miss this recognition and fail to limit the use of technology to situations where it can make a valuable contribution to assessment.

Results build a picture of practice in which a dynamic between midwife and woman is optimum for case management when midwives using expectant management rely on observation to provide a holistic image of labour. All respondents identify observation evidence to an extent, but most regard it as little more than background information and prioritise information from unnecessary, intrusive vaginal examination. This is not always associated with thorough processes as there was incomplete understanding by some respondents of circumstances where additional information was desirable for effective diagnosis and management.

The conclusion drawn is that accurate diagnosis is less likely if an active management style of assessment is adopted because it centres on cervical dilatation, compared with population parameters while neglecting observable holistic information and reducing the view of progress to changes in the cervix. In evaluating normality this way midwives fail to recognise variation in labour, they may also fail to recognise early the development of problems. Technology has a role within holistic assessment, when it is used to confirm or exclude the existence of suspected problems; but when it is used in isolation it can present a misleading image of progress, despite the misconception that it provides greater precision than other methods of assessment.

As 'it is not always possible to predict when difficulties might arise' (DOH, 2003, para. 2) it is necessary for midwives to use holistic examination and broader criteria of progress than those of an ineffective active management style. However, results from this study indicate that midwives are not sufficiently confident in their diagnostic skills for them to give up routine vaginal examination and a recent report by the Maternity

and Neonatal Workforce Group supports this (DOH, 2003, para.18). This situation exists at a time when midwives are expected to provide intervention free birth. While midwives have alternative ways of conceptualising the uncertainty of childbirth as variation in a normal process and have identified alternative approaches to progress assessment in expectant management, in combination with increased collaboration with women and greater autonomy from medical staff, evidence from the literature and this study suggest that midwives may not all possess the skills to work in this way. Evidence that practice knowledge develops from 'doing the job' (Eraut *et al*, 1998) is supported from results from this study, as experience of hospital practice is associated with a lack of confidence in expectant management. In contrast experience in holistic assessment is associated with an expectant management style that unfortunately only a few midwives in the study have had the opportunity to develop.

Reinstating normality as a valuable concept for childbirth provides a solution to uncertainty by situating it within the variation of the process of normal birth. This is located in a women centred approach to care that predominantly uses observation to identify evidence of labour trajectory or problems. This contrasts with a technological perspective in which measures of labour trajectory and solutions for inefficient physiology are based on technology. The view of uncertainty that is adopted is manifest in the frequency and immediacy by which midwives resort to intrusive examinations. Results indicate that accommodating uncertainty in labour trajectory increases with progressive experience. As a result of experience midwives might use intrusive assessment less if they learn from experience to be less reliant on the information from intrusive assessment and if they have an opportunity to alter their practice. Only a few midwives describe making this transition, and they link this to gaining experience and working in environments other than on a consultant labour ward. A model described by Antonovsky (1987) explains the development of a Sense of Coherence from stress that is experienced in everyday situations. In the context of this study the development of Generalised Resistance Resources is associated with salutary experience of work in which Generalised Resistance Resources are apparent in increasing meaningfulness, manageability and comprehensibility in relation to aspects of individual coherence. These are related to developing coherence for expectant

management and results from this study indicate that only those midwives who describe experiences outside of the consultant labour ward team have attained manageability (capability), and they attribute this to the alternative experience. This is in contrast with midwives who have Resistance Deficits and they attribute this to working in a culture of habitual practice based on active management.

Using holistic progress assessment is associated with greater tolerance for uncertainty, possibly because a more complex appreciation of labour is developed from the breadth of observation data and learning to wait for confirmation that progress is normal. In contrast, an active management style of assessment does not reflect tolerance for uncertainty, possibly because frequent feedback during labour does not require midwives to learn to wait for confirmation. In addition a focus on restricted criteria may act to reduce an appreciation of the complexity of labour and create an illusion of certainty.

While simplifying the picture by reducing the number of variables that are considered may make labour seem more predictable and certain, it is also less accurate. Inaccuracy could possibly be acceptable if the certainty was also a reality but in truth it is not. The illusion of certainty and the inaccuracy that accompany active management are associated with a failure to recognise actual or potential problems with consequence for the process and outcome of labour, if a midwife's alertness has been undermined. Despite active management being perceived as a quality assurance measure to ensure that abnormality is detected and managed, in itself it is only likely to detect the consequences of abnormality as a failure of labour to progress rather than detect the reason.

The illusion of certainty that is created by technology also increases the incidence of interventions with the birth process and the consequence of this is iatrogenesis for a few women. In itself this may not be considered to matter very much by those who advocate and use active management, as technology will use technology to sort out the iatrogenesis it has created. A reduced perception of iatrogenesis is perhaps related to a focus on birth outcome rather than birth experience. Emphasising outcome could

possibly be considered acceptable if women give birth within consultant obstetric units, as they have the technology to deal with spontaneous and iatrogenic problems in labour. However, where women are cared for by midwives outside of the consultant unit then avoiding iatrogenesis and diagnosing spontaneous problems early are key aspects of care because of the need to refer women with problems or complications for emergency obstetric management.

The shortage of senior medical staff makes it impossible to sustain the existing model of maternity service and therefore 'options for matching the ... potentially available workforce, to ... service models and configurations' are being considered (DOH, 2003, para. 8). This is a driver for increasing the proportion of women with normal pregnancies who are cared for entirely by midwives and it is envisaged that the volume of births in locations without medical cover will increase. This development has implications for midwives' knowledge and skills in general and their diagnostic skills in particular as results indicate that observation skills are critical because they are more sensitive and more effectively accommodate variation in normal labour. Observation skills are central to midwifery and they deserve to be recognised as equally scientific in comparison to other assessment skills, especially by midwives who spend time with women in labour. From a vantage point of sustained time with women intermittent measurement is only relevant for practitioners who practice discontinuous care and monitor labour using numeric information provided by subordinate workers.

To adopt an expectant management style, the results demonstrate that midwives need to develop understanding and confidence in physiology and capability to favour observation skills over vaginal examination. A lack of opportunity to focus on observation in practice partly explains why some midwives are not confident they have these attributes and why midwives who have had a different type of experience do have confidence in their observation skills and are motivated to resist pressure from other midwives and the organisation to use active management for normal birth.

The development of capability in expectant management is linked to the grade of midwife and the location of work. It is apparent that demarcation for care is made on

the basis of location rather than health circumstances. While junior midwives have less capability in holistic assessment, observation is appropriate for them to use given their proximity with women in labour. Senior midwives are more likely to have capability, and this capability is utilised in community care however, senior midwives in labour ward teams who have less proximity with women uphold intermittent measurement by specifying particular information is entered in records and provided in oral reports. This behaviour has striking similarities to the preferences and authoritative position of medical staff.

Most of the midwives in this study appear not sufficiently confident to rely on external signs in clinical diagnosis because they doubt their skills in holistic assessment, because others doubt their skills or because the context of care where most of them work increases the pressure for them to provide accurate technological evidence. This is in contrast with results from hypothetical exercises where external evidence was considered adequate for diagnosis. Unfortunately in the clinical area a misleading perception of accuracy is maintained by most midwives at the expense of holistic assessment.

It is proposed that a focus on technology within the work environment on consultant labour wards combined with the effect of hierarchical distribution of power within the midwifery team limits the development of manageability for expectant management. This is a consequence of a particular form of participation within a community of practice, where the downside of a structure generally associated with the development of knowledge and skill in practice has negative consequences. This is because the community of practice appears to have foregone the autonomy of individual midwives within a system that increases the credibility of senior midwives, possibly as a strategy to prevent medical encroachment. This is in part linked to upholding an active management style of progress assessment as measures of progress used in active management that are reified in policy and rules adopted by the community for documenting, and that provide an illusion of reality to which the community hold on. Unfortunately reduced participation and autonomy in decision making about client care produces a 'spoilt identity' for midwives and threatens self-esteem that can only be

retrieved at the expense of the client. In this case by midwives focusing on technical skills and efficiency rather than observation and care.

Implications

As practice is developed and is altered in the work place the importance of the midwives' work environment in relation to their use of holistic progress assessment requires greater recognition. If midwives are to adopt an expectant approach to practice and know when to use holistic skills and technology appropriately they need to develop understanding of birth as a physiological process and acquire capability and motivation to practice Expectant Management. To this end it is necessary to examine the future role of midwifery education, located within higher education and midwifery management, located within the maternity services. Although these implications are in all probability relevant to midwives in general they focus especially on the case reported in this study.

A self-aware approach to midwifery practice reflects a balanced expectant management style of assessment that predominantly uses holistic observation and where measures based on technology are justified by the circumstances of an individual woman and labour. Holistic assessment based on observation is particularly applicable for women centred care if it is combined with what is referred to by Jordan (1997), as a horizontal distribution of power between midwives and women who are giving birth, and where *nonauthoritative knowledge* is recognised for its value. While holistic skills can be encouraged by good leaders clear demarcation between organisational management and professional autonomy is needed if a hierarchical distribution of power is not to be perpetuated. This situation results in women's experiences being considered secondary to the priority of the organisation as interpreted by more powerful senior midwives rather than midwives providing care.

In order for midwives to develop capability and confidence in holistic care and assessment they require experience working holistically and observing others who work

holistically to develop confidence in expectant management, in physiological birth, and in women's ability to labour. This may provide an opportunity to orientate towards individual woman in childbirth and at the same time develop a degree of distance in their decision making from other midwives. This is not to say that colleagues are not a potential source of knowledge and support within communities of practice but the hierarchical distribution of power over knowledge that was observed during the study appeared to have negative consequences for individual midwives and women.

Midwives' lack of confidence in holistic assessment was identified in a work environment in which the community of practice has emphasised reification over participation, which is evident as policies, guidelines and cultural rules. In this situation if midwives are to develop confidence in holistic skills further reification is an inappropriate solution and could further reduce confidence. Increased participation of midwives within their community of practice is required to create a balance with reification and encourage midwives to reevaluate their labour assessment skills. Increased participation can provide midwives with a voice to influence practice while at the same time create the situation where they can be influenced by other midwives interpretation of the work of the community of practice. This is important as technology appears to have a significant hold on many midwives and role models for expectant management may be necessary to accelerate a change in perspective through their participation in the work. A few individuals identified by the study do have confidence in holistic assessment and these midwives could make a significant contribution to a transition to holistic midwifery care. It is important to recognise that technology incorporating an active management style of assessment and management creates an illusion of certainty and potential iatrogenesis that makes it an inefficient and high-risk approach for community care either in midwifery led units or at the home of the woman giving birth.

Midwives in the study appear to understand in principle what is expected of an expectant management style of assessment and it is the capability to transfer this understanding to practice where the problem lies. However, a failure to use clinical skills such as abdominal examination has also been highlighted which is linked to increasing reliance on vaginal examination. Most midwives do not appear to have

capability in skills needed to diagnose progress using observation and in particular in abdominal examination.

There are implications for education if students are to be prepared to use holistic care and assessment. A need to demarcate clearly normal birth for holistic care as a philosophical position is important and there is a challenging practical reality of influencing observation skills, as midwifery educationalists have never been so distant from clinical care as they are at the present time. As few midwives appear to have confidence in their holistic diagnostic skills and in particular in abdominal examination, their ability to teach student midwives the relevance of and to model such skills is limited. Midwifery educationalists need to develop innovative educational approaches to address this. In particular it is clear that experience and capability in expectant management is not developed when participating in an active management style of assessment. If institutions of higher education are to be responsive to midwifery service configuration they may need to reconsider the preparation of midwives. For example, in recognising the value of holistic assessment skills it could be considered prudent for educational institutions to expect that of the forty deliveries that student midwives are currently required to undertake by the European Union Midwives Directive (89/594/EEC) (Nursing & Midwifery Council, 2002), that a proportion should be 'normal births' experiencing holistic care and assessment based on expectant management.

A paper published by the education and research manager of the Royal College of Midwives (RCM) on the subject of valuing practice specifies RCM recommendations that (MacDonald, 2003):

'... students should have:

- *Five home births*
- *Four births within a birth centre*
- *Management of at least two labours with a physiological third stage*
- *Competence in neurobehavioural physiological assessment of the newborn*
- *Experience of a range of models of care including caseload practice.'*

This is a positive step by the RCM to redress of the needs of student midwives and prepare them to practice as midwives within new maternity service structures. However, focussing on the location of birth and organisation of care does not directly address the desirability of providing holistic care that incorporates Expectant Management for physiological birth. The exception is the recommendation that students manage at least two labours with a physiological third stage. The project model (Figure 6.1) indicates that the RCM recommendations (MacDonald, 2003) if implemented would possibly provide the type of experience, from which opportunities to develop skills required for Expectant Management may emerge. Within the project model the Sphere of Practice, as location of practice is a factor in developing a Diagnostic Orientation and developing alternative observation skills. However, what is not clear from this study is the extent that midwives working in birth centres and those providing home birth are subject to an imbalance of reification over participation in determining appropriate assessment, as results from this study demonstrate that work in Midwifery Led Units was influenced by protocols for routine assessment of progress. While the environment of care that MacDonald (2003) proposes may provide students with insight into Expectant Management the limited experience identified and other influences within the Community of Practice may limit this, particularly if midwives in the location have not developed capability in Expectant Management.

Results from this study have been used as the basis for the development of learning tools for student midwives' diagnostic skill development; provided as part of an ongoing action research study with student midwives. Research is required to test the Project Model (Figure 6.1) in other settings where midwives are engaging in labour progress assessment to assess its potential for generalisability and to modify it as appropriate. Research is also required into the value of the model as a tool that can be adopted by education and Communities of Practice wishing to promote and practice Expectant Management. As the Project Model (Figure 6.1) incorporates elements from a framework (Eraut *et al*, 1998) created to reflect the development of knowledge and skills in employment it provides an example of how the framework can be applied to the particular work contexts of other professional groups. Research is recommended to investigate the relevance of the Project Model for other professional groups.

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Glossary

Apgar Score	An assessment of the condition of the baby based on physiological criteria within a few minutes of birth, so that severe asphyxia can be diagnosed and treated.
Artificial Rupture of Membranes	Surgical procedure to break the sack of fetal membranes.
Central Midwives Board	statutory body for midwives set up under the 1902 Midwives Act to lay down regulations for the training of midwives, for admission to a register and for framing of rules governing their practice (Adams, 1983). Replaced by the United Kingdom Central Council for Nursing, Midwifery and Health Visiting, in turn replaced by the Nursing and Midwifery Council.
Descent of the Fetal Head	measured in 5ths of the head palpable. As the head descends into the pelvis, less of it can be felt abdominally.
Direct Maternal Deaths	deaths resulting from complications of the pregnant state
Malpresentation	Where the leading part of the fetus is not cephalic (head).
Maternal Mortality Rate	maternal deaths per 100 000 live births.
Multigravida	A pregnant woman who has had one or more previous pregnancies.
Multipara	A woman who has borne more than one viable infant.
Normogram	Of expected labour progress drawn from the labour stencil (Studd and Duignan, 1972)
Nullipara	A woman who has never given birth to a viable child.
Perinatal Mortality Rate	the number of stillbirths plus the number of neonatal deaths that occur in the first week of life per 1000 total births. Considered as deaths purely due to obstetric causes (Adams, 1983).
Primigravida	Woman pregnant for the first time.
Prolonged Labour	If labour is prolonged it can cause maternal death due to infection, shock due to trauma at delivery, ruptured uterus, and post partum haemorrhage. The risk of fetal death is greatly increased and is associated with pneumonia, intra-uterine infection, hypoxia and traumatic delivery.
Station of the Presenting Part	Station zero is at the ischial spines. Station is measured in 1 - 3 centimetres above (-) and below (+) the spines.

APPENDIX 1: CATEGORIES AND DEVELOPING MODEL

1.2 Categories of data

Grouping of Categories

Early project model (1)

1.3 Categories of Transcript Content

Project model indicating relationships between groupings of categories (2)

1.4 Model for Categories of Transcript Content (3)

1.5 Midwives Assessing Progress in Labour (4)

Final model presented as Figure 6.1.

OPEN CODE CATEGORIES:

INFORMATION GATHERING
INFORMATION WEIGHING
INFORMATION UNCERTAINTY
ACTIVITY STYLE
DISCRETION
SPHERE OF PRACTICE
LEARNING AND WORKING
PROGRESS CLASIFICATION
CONTRACTIONS
VAGINAL EXAMINATION
DESCENT OF HEAD
PAIN
CERVICAL ATTRIBUTES
FETAL MEMBRANES
MATERNAL CONDITION
MATERNAL ACTIVITY LEVELS
FETAL FACTORS

CLASIFICATION OF CODES:

DIAGNOSTIC ORIENTATION

- ACTIVITY STYLE
- DISCRETION
- SPHERE OF PRACTICE
- LEARNING AND WORKING

DIAGNOSTIC PROCESS

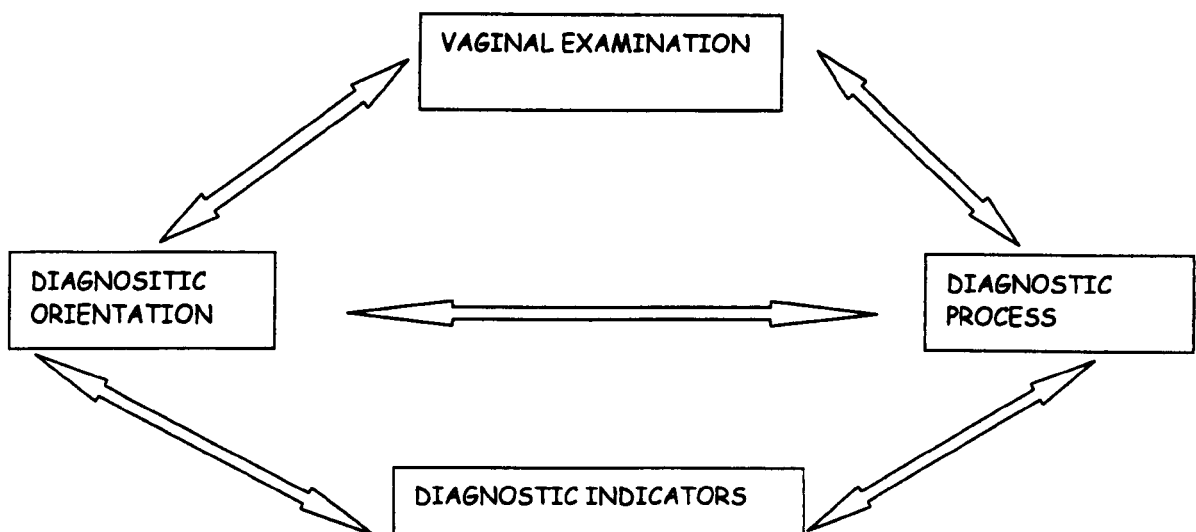
- INFORMATION GATHERING
- INFORMATION WEIGHING
- INFORMATION UNCERTAINTY
- PROGRESS CLASIFICATION

DIAGNOSTIC INDICATORS

- CONTRACTIONS
- DESCENT OF HEAD
- PAIN
- MATERNAL CONDITION
- FETAL CONDITION
- CERVICAL ATRIBUTES
- FETAL MEMBRANE

VAGINAL EXAMINATION

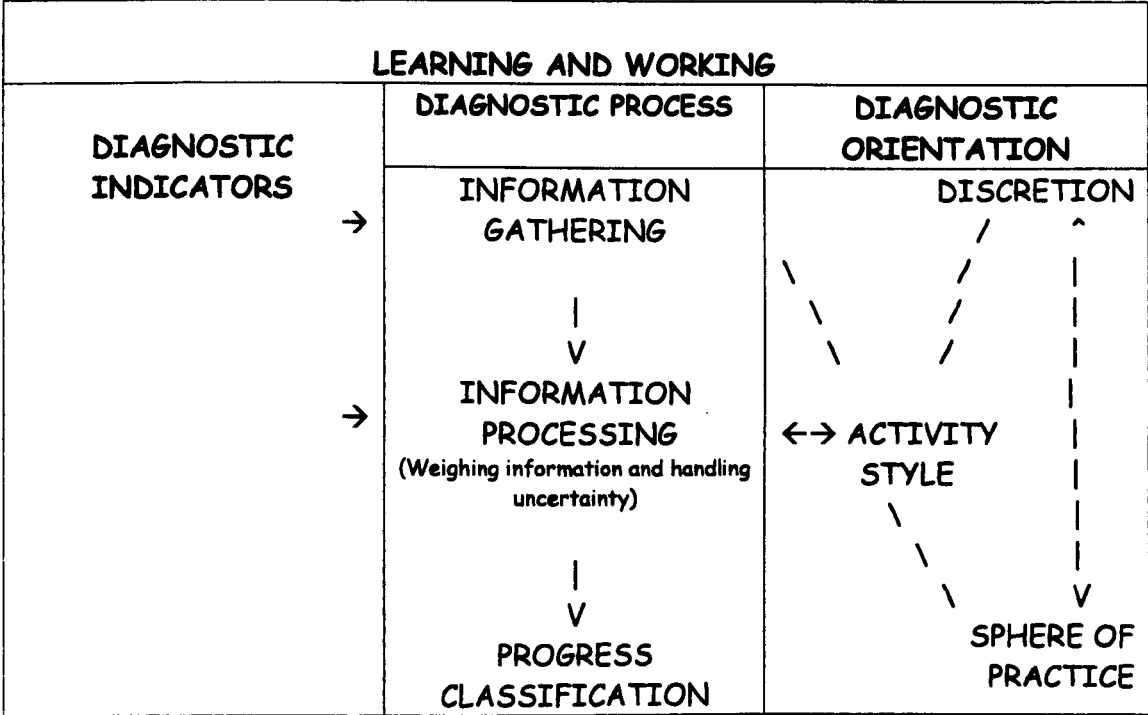
RELATIONSHIP BETWEEN CATEGORIES (1)



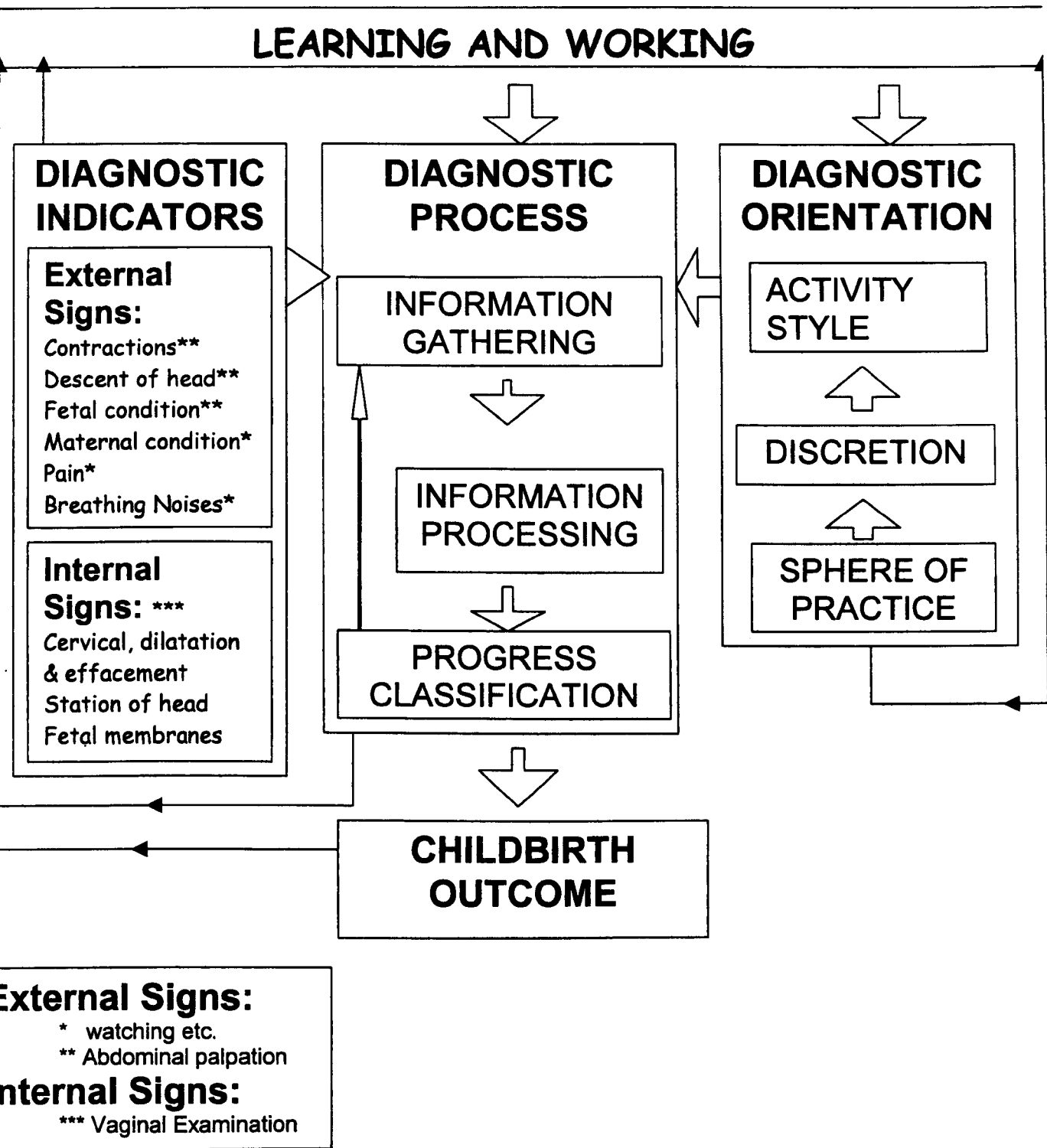
Categories of Transcript Content

1. Diagnostic Orientation <ul style="list-style-type: none">• Activity Style• Discretion• Sphere of Practice	2. Diagnostic Processes <ul style="list-style-type: none">• Information Gathering• Information Processing<ul style="list-style-type: none">Information WeighingInformation Uncertainty• Progress Classification.	3. Learning and Working. <ul style="list-style-type: none">• Confidence• Experience (type and amount)• Knowledge and skill• Organisational and societal factors
4. Diagnostic Indicators: <ul style="list-style-type: none">a) External Signs<ul style="list-style-type: none">• Descent of Fetal Head• Uterine Contractions• Fetal Condition• Maternal Condition,• Postureb) Internal Signs<ul style="list-style-type: none">• Pain• Breathing noises• Cervical dilatation• Cervical effacement• Fetal Membranes.		5. Vaginal Examination <ul style="list-style-type: none">• Political concerns and dilemmas• Objectivity• Unpleasant procedure• Interpersonal intrusion

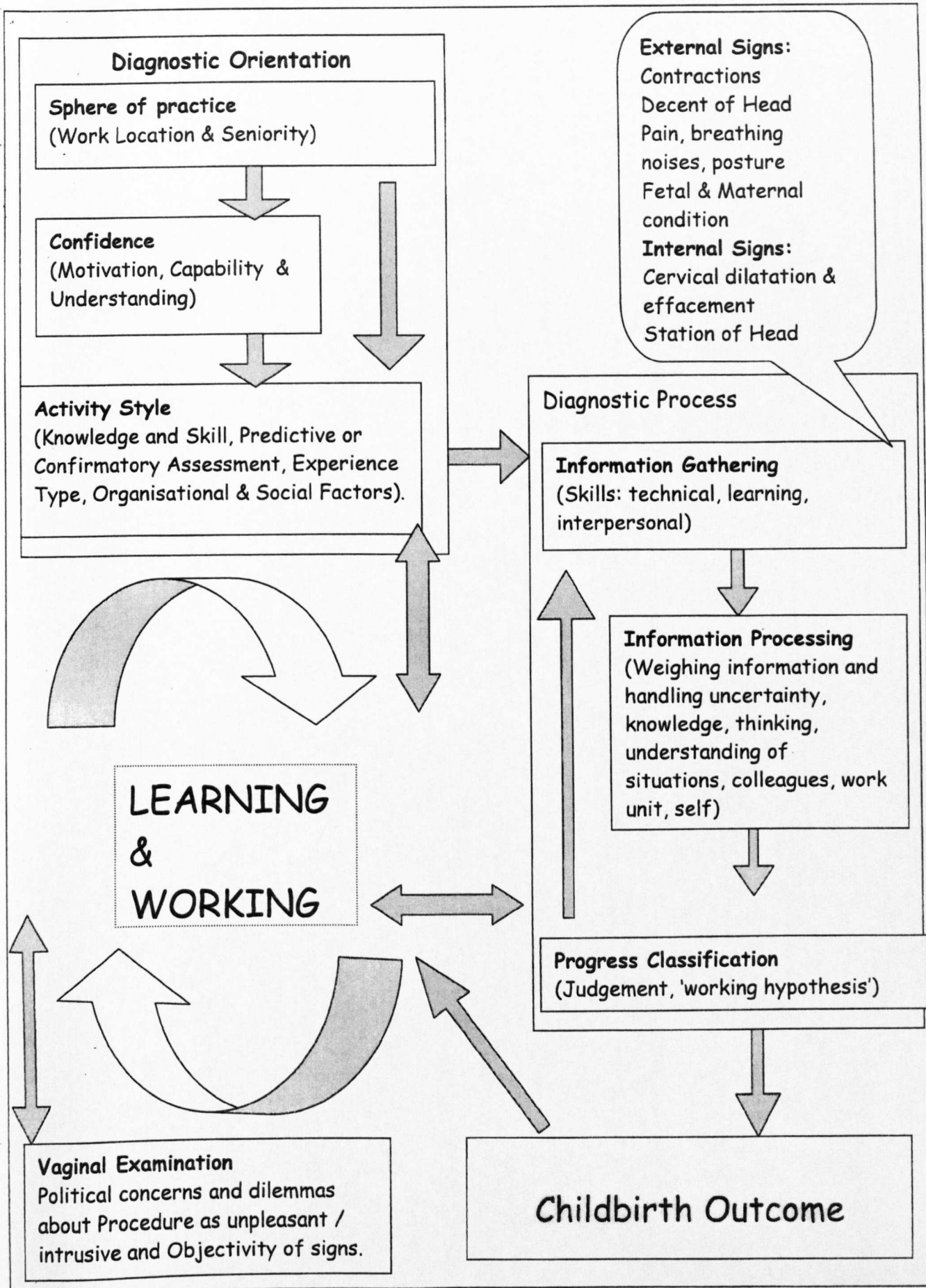
MIDWIVES ASSESSING PROGRESS IN LABOUR (2)



Model for Categories of Transcript Content (3)



Midwives Assessing Intrapartum Progress (4)



APPENDIX 2: RESPONDENT CODES

**2.2 - 2.4 Table with Respondent Codes:
Interview and Observation Respondents**

Table with Respondent Codes: Interview and Observation Respondents

I ¹ A ² 1	Senior Midwife who managed hospital midwifery at the point of first interview. Post-registration education at diploma (ADM f/t) and degree level (BSc Hons p/t) + Higher Award. Selected as 1 st respondent because of knowledge of unit practice, communication & reflection skills as well as her knowledge of perspectives relevant to midwifery, to care in labour & to progress assessment.	In depth (2hr) interviews used for building theory. Systematic analysis at end of this phase and development of preliminary model.
IA2	G grade midwife who had recently completed a rotation on the labour ward. Post-registration education at diploma level (p/t). Expected to have some skills in reflection and to be able to provide a rationale for her practice and to understand how her practice matched or was different to that of other midwives. Prior knowledge of this midwife indicated she was an easy open communicator who demonstrated a caring and pragmatic attitude.	
IA3	G grade midwife who was sponsored as a potentially valuable respondent due to her years of experience on the labour ward.	
IA4	S. Midwife with limited labour ward experience recently having commenced a labour ward rotation & therefore expected to be reflecting in & on practice. To follow up the effect of grade and experience.	
IA5	S. Midwife with substantial labour ward experience recently having commenced a labour ward rotation & therefore possibly reflecting in & on practice. To follow up the effect of grade and experience.	
IA1r ³ , IA2r & IA4r	Repeat individual interviews to present analysis and preliminary model for verification & to follow up leads & seek clarification or explanation. These + interview IA1-5 + preliminary observation OA1, formed the basis for the design of the remainder of the project.	
O ⁴ A1	G grade midwife with extensive experience on the labour ward, in charge of labour ward shift and caring for, assessing and delivering a client (C1) who was low risk. Pilot opportunity for data collection methods, for familiarisation with the field and initial checking out of results from interviews.	

¹ Interviewee
² Unit 'A' (Case Study)
³ Repeat interviews
⁴ Observation respondent

OA2	(IA1, IA1r) G grade midwife with substantial experience on the labour ward, in charge of labour ward shift and caring for, assessing and delivering a client (C2) who was low risk.	Selection of 'low risk' cases determined the midwife respondent - who was allocated by G grade in charge according to continuity for client & caseload.
OA3	Midwife employed on 'Midwifery Bank' who has recently completed a return to practice course. Caring for, assessing and delivering two clients (C3 & C5) who were low risk.	
OA4	Staff midwife with substantial experience gained working part time. Caring for, assessing and delivering a client (C4) who was low risk, but had an episode of fetal bradycardia in the second stage of labour.	
OA5	(AI6) Staff midwife with limited experience but who has worked for 1 year on the labour ward. Caring for, assessing and delivering a client (C6) who was low risk.	
OA6	(IA5) Midwife who has retired from a full time post and is employed on the 'Midwifery Bank'. She has substantial experience in midwifery and usually works 1 or 2 shifts each week. Observed caring for, assessing and handing over care of a client (C7) who was low risk to a midwife on day shift. This midwife subsequently carried out the delivery.	
OA7	G grade midwife (p/t job share) with substantial experience on the labour ward, in charge of labour ward shift and caring for, assessing and referring a client with a urinary infection to the doctor.	
IA6	(OA6) Short interview to follow up observation and rationale for practice (assessment methods and ARM).	
IA7	G grade Community Midwife who has experience of working on the 'midwifery team'. Looking for exceptions to an approach to assessment used by the hospital midwifery team. Post-reg. education at diploma (ADM f/t) and degree level (BSc Hons p/t) + Higher Award. Selected as a respondent for in depth interview because of knowledge of unit practice, communication & reflection skills, knowledge of perspectives relevant to midwifery, to care in labour & to progress assessment. In depth interview.	
IA8	Staff Midwife with extensive experience who was working on the labour ward. Appeared less integrated with the team than other midwives. Interviewed to look for alternative, preferred approach to assessment and care and perspectives and views on practice. Short interview.	
IA9	G grade Community Midwife with extensive experience who has worked on the 'midwifery team'. Looking for exceptions to approach to assessment presented by the hospital midwifery team and comparison with other community midwife (IA7). Selected as a respondent for in depth interview.	
IA10	G grade midwife (p/t job share) with substantive experience working on labour ward. Looking for exceptional and representative cases. Short interview.	
IA11	G grade midwife (p/t job share) with substantive experience working on labour ward. Looking for exceptional and representative cases. Short interview.	

IA12	Staff Midwife (Pre-reg) with less than 6 months experience, gained on the labour ward. Following up comments during observation, which were critical of expectations for progress assessment. Short interview.	In depth interview
IA13	G grade midwife with extensive experience working on labour ward. Looking for exceptional and representative cases and a rationale for practice. Short interview.	
IA14	Staff Midwife (Pre-reg) with about 1 years experience on the labour ward in unit A & a little experience else ware in the UK. Looking for critical comparisons with experience in other units & insight into expectations from midwifery team. Short interview.	
IA15	Senior Midwife responsible for 'Risk Management' who has extensive varied experience in the UK and overseas, in hospital and community. To investigate implications of risk strategy for progress assessment as a follow up of attending several 'risk meetings'. Also to investigate varied experience and approach to assessment. In depth interview.	
IB ⁵ 16	Senior Midwife with substantial varied experience in hospital, community & MLU's, who is responsible for practice development in Unit 'B'. Has Diploma (ADM), Degree (BSc hons) and Educational qualification at masters level. Interviewed to explore her practice styles working in different environments and to investigate practice development needs in unit 'B'.	
IB17	G grade Midwife with extensive varied experience in hospital midwifery in consultant and General Practitioner (Isolated) Units. Selected to explore practice knowledge and implications of hospital policy for routine labour assessment.	
IB18	Acting G grade (pre-reg) who worked in unit 'A' prior to gaining promotion and moving to unit 'B'. Selected for comparison working practices between units and for reflection-in-action when undertaking role as G grade.	
IB19	Lecturer in Midwifery who has a clinical role in unit 'B' and who has a module in which students are assessed on their knowledge of abdominal examination. Extensive experiences in practice in the UK and overseas and in education. Interviewed to discuss her practice experiences and to discuss findings from the project, pursuing alternative explanations and validating the model.	

Case Note Entries CC1-29

Questionnaire Respondents

QA1-17	Unit 'A'
QB1-15	Unit 'B'
QC1-16	Unit 'C'

APPENDIX 3: SAMPLE DATA

3.2 Sample of interview transcript from an in depth interview (IA9)

3.4 Example of hand notes made during observation (OA3 and C3)

Sample of interview transcript from an in depth interview

I - Interviewer (Maureen Sookhoo)

R - Respondent (IA9)

R Er, my name's xxxxx. I'm a Community Midwife working in [unit 'A'], predominately in the xxxxx area. Em, I've been a Community Midwife now for just over 11 years. Em, I've worked – I did my training, started my training in 1985 as a Midwife up at xxxxxxxxxxxx Hospital. I've been in nursing since 1979. Em, I did the 18 month course and when I qualified I moved down to [Unit 'A'] and worked in the hospital from '86 to '91. Er, I worked full time for a year, from 1986 to 1987. I then went on maternity leave until April '88, came back part time as by then an E Grade post, and did 16 hours a week. I think I did that for a couple of years and then I got a job share F Grade post which was then a Sister's post and from there went to the community

I Well that's a You're really good at remembering the details. There's something I just want to pick up on there. You know that when you were having hospital experience

R Yes

I Just - like a guestimate – could you tell me about how long labour ward experience you would have had out of all of that?

R Yeah. I, when I first qualified we actually went straight onto the labour ward and in those days there were no other, there were no students in [Unit 'A'] [Oh right] So it was very, it it you know, it was really very much a period of consolidation. So I never had any other students to look after during that period of time, so from probably virtually the whole, from June of '86, probably until for about eight or nine months I would have worked solely on the labour ward and then you would have been a junior member of staff [Yes] You know, able to get on with things and also would have your own support, but you weren't then having to try and teach somebody else while you were consolidating your own knowledge and skills [Yes] I mean, that was pretty useful. So then and then probably when I came back over the next – it must have been two or three years – I would think I probably did the equivalent of a year or two again on labour ward but that was only over 16 hours and then I did the F Grade post. Em, I think most of that, a lot, quite a bit of that might be more postnatal really [Right] But as an F Grade you weren't taking charge on the labour ward then [Right]. That was still er G Grades. So quite a bit of labour ward experience

I I was interested there that you didn't have students at [Unit 'A'] which actually I hadn't realised. When, when roughly did the students

R Come?

I Yeah, when did they come?

R I would imagine em, probably at about 1988 or something

I So was that with the new, like the

R No, no, they just didn't train student midwives in [Unit 'A'] [Oh right] And then, which you know, One of the ways of getting a job at [Unit 'A'] was to be a midwife because they didn't train their own midwives So when I did my training up at Newcastle I always intended to come and work in [Unit 'A'], because that's where I lived

I So that explains, right, why such a lot of the experienced Midwives trained in xxxxxx, either at the xxxxxx or xxxxxxxx.

R Yes [Yes] Yes

I I hadn't appreciated that

R Right

I So, now that you're in the community, do you have many deliveries?

R Well over the years, it's changed [Right] Over those 11 years. So in the first few years we did do a lot of what we described then as domino deliveries. [Right] So when I say a lot, it probably might be perhaps 11 or 12 a year, which may not seem a lot of women but in terms of commitment is massive. Em, by '90, so that was from 1991 and by I think it would have been 1996, we actually, the the workload, the staff ratios increased by 25 per cent so we went from three staff looking after xxxxxxxx and xxxxxxxx to four staff. [Right] Now at that time that was all and you know, all of that kind of area, women delivering, women having the midwife that they know delivering their baby. So when we first got the extra staff, em, we actually in our base, developed a er sort of means of trying to deliver women that we knew. So for the period of about nine months certainly we actually em set up a Meet the Midwives Scheme [Right] So that women were actually invited to er as it turned out hospital but it was the only place we were able to get a room. And they would meet the four staff who work there em and as a consequence one of us would then try and deliver some of those women who were on the Meet the Midwives Schemes and stuff em, and the women were given a sort of form with our names, pictures, a bit about who we were and what we did, a little bit about our own lives. Em, and and that sort of in that way they came to know us [Yes] So, but about - it might have been about nine months - initially we em, we didn't have mobile phones then and we only had

one bleep between four of us em and we sort of, we were thinking well we'll buy a bleep, you know, if nothing else, so that we could be contacted. But we actually then got mobiles phones, that that actually happened then, em, so that meant we were contactable because prior to that, although we'd been involved with dominoes and things, it was often difficult to get a hold of us. And we were giving our patients our home numbers prior to that. We were just giving our home number and they could ring at any time. If you were in you would go and deliver the baby. And you were doing that completely in your own time, above and beyond your normal job. Em, so by '86 it must have been, 1986 yeah, '86, we had the mobile numbers em and the women weren't were no longer given your home number. They would contact us on a mobile phone. And what we did was we actually set up on-call rota between the four of us, em which meant - because as you'd imagine there was perhaps only three if somebody was on holiday - you were actually on call, you know, once every two nights and perhaps even more, on call all weekend. So we did that for some time and em we delivered a lot of women in the first year, something like 80 between the four of us [Right] Which was a massive amount of women, em, and basically ran ourselves completely ragged and at one point we decided to cut the on call so that we we would just do it until 10 o'clock, so anything after that was hard luck. But if you were in hospital before 10, then you would er be looking after the women Em, so that, for that year or more we did a lot of deliveries in the hospital, but em those schemes all, you know, they all mostly came to a close because we just couldn't cope really, with the the workload anyway and trying to do that. And really what we found was that the women weren't terribly bothered who delivered them, all they liked was the fact that whoever was looking after them was a kind person, and I think, you know, as the years have rolled on that's become more apparent. So that knowing your midwife it was it became obvious even to us that wasn't as significant as you might have expected so a lot of the women might have only met us briefly for a chat and they liked that [Yes] But they didn't have to know us as their Community Midwife [Right] And of course over that period of time as well, things like early discharges, people were able to have them without having to be delivered by their own midwife, so a lot of the reasons prior to that why women wanted their own midwife was so they could get an early discharge. But that was also due to the And around that time as well, we em had a lot of home births too, and I think, you know, over the years the numbers of home births have, it seems really in areas of the higher socio-economic groups, as in ours, have actually the numbers have gone down because initially when I first started in the early '90s, the only people who had home births in the main, were people like myself in the higher socio-economic groups [Right] It wasn't women from xxxxxx or xxxxxxxx or xxxxxxxx which that would have been quite a shift there, but if you looked now, that would be quite a different statistic. Em, so we did a lot of deliveries then and then em, more recently because of the, you know, there's been less pressure on us to provide that type of service, em, so that it waned really and em we basically take on responsibility for all the home births on [Unit 'A'], though we do on calls for cover there, a modern facility

I So that's more manageable

R It's much more manageable and if you have your, if you have home births in your own area, obviously during the day it's your patient, you're there, you would try and deliver them [Yes] That often can be very difficult as well because you just need three staff at the clinics, somebody's on holiday, somebody goes into labour and it's a bloody nightmare, that is, but that's how it works at the moment. So, em, mostly now it would home births that we do, we don't do the Know Your Midwife Scheme anymore but between September last year and December, I actually went to work on the labour ward as well [Right] So I did that for 12 weeks and I did four hours, like four hour shifts from half four till half eight continued

Example of hand notes made during observation (OA3 and C3)

This client (C3) contacted the labour ward to say that she had been contracting for some hours. The pregnancy was at term and she had no problems. This was her second pregnancy and she was booked for a home birth.

Labour Record
25:01:03 at 13.00. contracting 1:15. A/P Term LOL Ceph 2/5 FHHR. Will call back later.

The on-call community midwife was contacted late evening by the labour ward staff and asked to attend the labour and make an assessment. When the community midwife examined the abdomen she thought the presentation might be breech. She brought the client into the maternity unit to have an ultrasound scan performed by the duty registrar.

The labour ward midwife palpated in order to assess the fetal heart and reported that the fetal heart could be heard below the level of the umbilicus. The community midwife said it was also quite loud above the umbilicus, and that there had been a breech presentation a few weeks earlier. The ultrasound scan demonstrated a cephalic presentation in an ROL position. The doctor examined the abdomen and found that the fetal head was 2/5th palpable. On vaginal examination the cervix was 2cm dilated and the station of the head was -1. It was confirmed that the fetal membranes had ruptured spontaneously. There were no problems with this labour and the client was suitable for a home birth. The client had requested a home birth because she had a very long 2nd stage with her previous pregnancy. She thought she was in 2nd stage for 9 hours. The community midwife discussed the place of birth with the client and her husband, and as she felt quite relaxed in hospital and the husband and family were not happy about her giving birth at home, she decided to stay in hospital.

Once the community midwife had left the client was assessed as she had requested pethidine. At this time she was having regular contractions every 2 - 3 minutes and they appeared to be quite strong as she was unable to talk during contractions and used the entonox to help with the pain. The labour ward midwife performed a vaginal examination to assess progress prior to administering IM analgaesia. She reported that the cervix was thin and well applied to the head and 4 cm dilated.

Labour Record
Cx. fully effaced, thin, well applied to presenting head. Os 3-4 cm dilated, clear liquor draining, FHHR with Pinard's 130-140bpm.

The client was moved to a delivery room and CTG trace was commenced. Pethidine was administered. Within 15 minutes the client reported that she had an urge to push.

The midwife did a vaginal examination and found the cervix fully dilated and the fetal head well down. The sagittal suture was palpated in the AP diameter of the pelvis.

Labour Record
01.35. VE Fully dilated. Commenced pushing.

A normal delivery followed after 3 contractions.

Discussion

This client had been suitable for a home birth and had no problems until breech presentation was suspected and excluded. When the hospital midwife carried out the first VE contractions were regular, frequent and strong. In addition the fetal head was engaged (para 1) and a VE by the doctor identified the station as -1 (about 1 hour previously). At this point the cervix was 2cm dilated, and therefore not conclusive of established labour, but the other signs were positive. At 4 cm dilated established labour was confirmed and pethidine administered to help with the pain. Within a few minutes the client wanted to push. A VE was used to confirm dilatation, station and position. Descent and position could have been established using abdominal palpation, which was not carried out. However, the client had experienced a long second stage with the previous pregnancy and the midwife may have wanted to ensure that the cervix was fully dilated.

Interestingly, when the head delivered and restituted (turned to align with the fetal shoulders) the midwife did not recall that the fetal occiput was on the right when she attempted to facilitate the next phase of the birth mechanism. **At this point I intervened quietly to remind her the back was on the right.** The midwife quickly compensated to correct her assistance.

APPENDIX 4: CODES

4.2 Open Codes

4.5 Axial Codes

Memo

OPEN CODE CATEGORIES

Category

Information Gathering

Properties

perspective
Orientation
Interval
Approach
Interpretation
Intrusiveness
Field of influence
Compliance factor

Dimensional Range

prospective
client
continuous
holistic
intuitive
low
evidence
high

retrospective
midwife
intermittent
fragmented measures
objective
high
organisation
low

Category

Information Weighing

Properties

prioritisation
Trajectory of labour
Information gathering
Risk assessment
Past cases

Policy influences
Client influence

Dimensional Range

internal signs
considered
complete
low
many
Considered
low
high

external signs
not considered
incomplete
high
few
not considered
high
low

Category

Information Uncertainty

Properties

precision expectation
Risk taking behaviour
Tolerance
Time oriented
Belief
Approach
Confirming
Policy / practice

Dimensional Range

low
low
low
present
nature
waiting
outcome
exact criteria

high
high
high
future
science
doing
measure
guidelines

Category

Activity Style

Properties

information gathering

Involvement
Affiliation
Work style

Dimensional Range

watching
Vigilance
confirming
companion
active (doer)

examining
investigative
predicting
scientist
inactive (waiting)

Category

Discretion

Properties

experience amount
Experience relevance
Credibility
Confidence
Client knowledge
Client participation
Partnership (W/M)

Dimensional Range

lots
related
high
high
extensive
focussed
strong

limited
non-related
low
low
limited
distracted
weak

Category

Sphere of Practice

Properties

case parameters
Rules
Case responsibility
Intervention probability
Who classifies case
Paradigm

Dimensional Range

normal
own
midwife
high
midwife
change

abnormal / boundary
medical
doctor
low
doctor
consistency

Category Learning and Working	Properties experience Case building Skill development	Dimensional Range organised well developed limited Mastered	opportunistic limited development extensive not mastered
management	Practice knowledge	informs practice	practice informs
	Theory availability	varied	limited
	Models available	varied Policy bound	limited responsive
	Consulting/collaborating	extensive	limited
	Confidence	expansive	limited
	Role of midwife	valued Subservient	undervalued autonomous
	Birth as experience	important	secondary to family
Category Progress Classification	Properties evidence consensus Evidence bias Practice consensus Trajectory of time Safety Woman coping Knowledge status Power Parity of client	Dimensional Range high low high long low risk well research politics nulipara	low high low short high risk poorly custom clinical evidence multipara
Category Contractions	Properties regularity Interval Strength Duration Discomfort Trajectory	Dimensional Range regular frequent strong sustained present escalating	irregular infrequent weak fleeting absent static / diminishing
Category Descent of Head	Properties relationship to brim Relationship to outlet Relationship to cavity 5ths palpable Station of PP	Dimensional Range engaged visible above spines 5 -5	not engaged not visible below spines 0 +5
Category Cervical Attributes	Properties Os dilatation length thickness application to PP position	Dimensional Range 10 cm 5 fingers long thin well applied central	1 - 2 cm finger tip effaced thick loosely applied anterior / posterior
Category Fetal Membranes	Properties state Application Clinical history Clinical management	Dimensional Range intact bulging SRM conserve	absent applied to PP ARM rupture (ARM)

Category Uterine Pain	Properties intensity Interval Location Duration / trajectory Client response Management	Dimensional Range strong intermittent abdomen long tolerance administered	weak continuous thighs short distress learned client
	regulation Information balancing Expectancy Controllability	confirming high high	contradicting low low
Category Maternal Condition (during contractions)	Properties mental state Posture Movement Inhibition Temperature Communication answer Non-verbal noises out/grunting Physiological state	Dimensional Range calm upright / relaxed mobility discrete flushed cheeks Perspiring able to talk quiet/controlled parameters normal	loss of control flexed/ridged/holding immobility/thrashing indiscrete (relative) flushed generally profuse perspiration unable to respond/no moaning/crying parameters abnormal
Category Fetal Factors	Properties Size Lie & attitude Position FHR Amniotic fluid Fetal state	Dimensional Range average longitudinal flexed occipito anterior normal clear healthy/ responsive	large / small longitudinal deflexed occipito posterior rapid / slow meconium stained distressed
/unresponsive			
Category Vaginal Examination	Properties effects on woman Effects on labour Exactness of measures Reliability of measures Progress indicator Discomfort Value Frequency Indication	Dimensional Range acceptance minimal precise value confidence severe high - 4 hourly routine	intrusive interference imprecise low value scepticism mild low + 4 hourly when required

Unexpected Progress		mapmim4 p 1-
Category	Properties	Dimensional Range
contractions	strength duration interval pain	tightenings fleeting (30 seconds) not painful
cervical state	dilatation	5 cm
Information Process		
category Information gathering	properties orientation interval approach intrusiveness field of influence	dimensional range client continuous holistic low clinical evidence midwife intermittent objective high organisational factors
Information weighing	prioritisation Trajectory of labour Information gathering Risk assessment Past cases Knowledge	external signs considered complete low internal signs not considered incomplete high

APPENDIX 5: CATEGORIES

5.1: Interview section with categories

Section of transcribed interview (IA1) showing categories that incorporate codes from the data.

'Telling the now' in terms of evolving practice style.

'I think it's something that you gain with experience (LEARNING AND WORKING), ... I would say it's an intuitive thing (ACTIVITY STYLE). Of being with women through labour (ACTIVITY STYLE). Because I know .. when I'm listening, ... and I'm watching (vigilant watchfulness). .. I'm listening to their breathing patterns and the way that they're going on. And you can tell, it's like knowing that somebody's coming up to fully before they're even there (PROGRESS CLASIFICATION). You know beforehand..., that they're in that transitional phase (PROGRESS CLASIFICATION). You don't need to do an examination to confirm it (INFORMATION WEIGHING)

'... very early on (LEARNING AND WORKING)... in the first few years of practice. I'd be much more tempted to vaginal examinations, ... at regular intervals (ACTIVITY STYLE) because .., it was comforting for me to know that she was progressing (INFORMATION GATHERING), .. I didn't truly believe in the skills that I had. Intuitive skills (INFORMATION UNCERTAINTY). Which I recognise now but I didn't recognise then (LEARNING AND WORKING). ... maybe I was going off for a meal break ... and I wanted to know that she wasn't going to deliver when I was away (INFORMATION UNCERTAINTY). In case I missed the delivery (LEARNING AND WORKING). Or if I was being asked to care for two women (SPHERE OF PRACTICE). But that was for me (LEARNING AND WORKING). It wasn't for her. And I recognise that now. And now .. I would say that I'm much more hands off (ACTIVITY STYLE). I don't feel I need to be in control of the labour as much as .. I did. I'm now happy to let the woman progress (ACTIVITY STYLE).'

when I was ... a .. newly qualified midwife, I didn't have certainty about my skill of doing vaginal examination (INFORMATION UNCERTAINTY), and I think I had to do them in multiples to gain that experience (LEARNING AND WORKING). Now I'm confident in doing a vaginal examination. Early on I got them wrong many, many times.... I still doubt what I'm feeling. ... I became very confident (LEARNING AND WORKING).'

'But the more experience I've gained, ... (LEARNING AND WORKING), ...you know it's not that important how many centimeters she is (INFORMATION WEIGHING). I would go out and check my fingers on the dilatation board (LEARNING AND WORKING). But now like I think ah, well it's a rough guess (SPHERE OF PRACTICE). It doesn't really matter (DISCUSSION) because I'm looking for descent of the head, and I'm looking for other parameters that tell me she's in labour (PROGRESS CLASIFICATION). Rather than what's going on vaginally (INFORMATION WEIGHING).'

APPENDIX 6: STAGES OF ANALYSIS

6.2 Identifying developing knowledge and skills (Eraut et al 1998) in interview transcript (IA1).

6.6 Memo with discussion and analysis around Eraut et al's (1998) framework.

6.8 Table with comparison with Eraut et al's (1998) framework and initial 5 in depth interview transcripts

6.11 Schedule for repeat interviews (IA1r, IA2r, IA4r)

6.12 Draft paper used for verification of findings at repeat interviews.

Developing Knowledge and Skills

Categories from transcript - IA 1

What is being Learned (W)

W1 Understanding

W11	Salient and critical features	65 - 69, 73 - 77, 137 - 142, 186 -190, 198, 393 - 394
	Perspectives of participants (clients)	78 - 80, 91 - 94, 590 -598
W12	Understanding of Colleagues and Work Unit dispositions relationships	442 - 444, 442 - 444,
W13	Understanding of Organisation Policy Mission, aims, customs	67 - 68, 198 67 - 68, 386,
W14	Understanding of Self Dispositions and bias how one learns strengths and weaknesses conditions affecting quality of performance	159 - 160, 186 - 190, 393 - 394 261 - 265, 240 - 243, 442 - 444, 250 -251, 442 - 444,

W2 Skills

W21	Technical Skills(/ clinical) diagnostic skills	240 - 243, 442 - 444,
W22	Learning Skills reflection recognising relevant knowledge transfer of knowledge from other contexts	648 - 661 648 - 661 648 - 661
W23	Interpersonal Skills Persuading, Explaining, Listening, Supporting client	89 - 90, 393 - 394
W24	Thinking Skills decision making evaluation skills planning and controlling ones own work problem solving	169 - 173, 184 - 189, 208 - 209 169 - 173, 186 - 190 100 - 103 184 - 189

W3 Propositional Knowledge

W32	Specialised Occupational Knowledge	43 - 53, 64 - 65, 137 - 142, 186 - 190, 264 - 268,
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W5 Judgement

W52	evaluation	100 - 103
W53	strategic decisions	106 - 108
W54	staff issues	96 - 98
W55	prioritising	

H1 working for Qualifications

	specialist, mid career	648 - 661
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H6 Consultation and Collaboration within Working Group

	feedback from colleagues (informal)	380 - 381
	sharing mistakes	380 - 381
	demarcation boundaries	564 -567,

H7 The Challenge of the Work Itself

(focus on normal)	
experience	212, 393 - 394
listening and watching	215,
anticipation	217 - 218
building a picture of the case	223
self set goals (for skill development)	275 - 276
learning from mistakes	280,
difficult problems	274 - 275, 442 - 444,
atypical cases	311 - 355

F1 Confidence

Confidence in knowledge and skills	84 - 85, 186 - 190, 212, 393 - 394, 442 - 444, 399
Sufficiency of experience	85 - 86, 212, 393 - 394404
Dealing with uncertainty	90 - 91, 186 - 190, 393 - 394, 404, 442 - 444,
taking risks	404,
self-evaluation (realistic expectation about ones performance)	397 - 398, 442 - 444,

F2 Motivation

to do the job (not miss delivery)	247 - 250
to please clients	247 - 250

F4 How a person is managed

autonomy and professional discretion	229 - 230
manager as creator of micro climate	393 - 394,
manager as role model	393 - 394,
accountability	746

F5 Culture of the workplace

Avoidance of blame (acceptance)	444 - 445,
---------------------------------	------------

F6 The Organisation

meeting client's information needs	79 - 84
roles and expectations	383 - 385,
demarcation for safety	383 - 385, 442 - 444, 750 - 754
credibility	452

Note
There are interesting issues here for the difference in practice between this midwife as a junior staff midwife and how she practices now. The learning that has taken place and how her practice has evolved as a result of this seems to be more relevant than her position in the structure. Also of relevance is the fact that she manages the labour ward, and has completed three post qualifying courses (ADM, BSc Nursing Science, and the Higher Award (ENB). A lot of detail and personal perspective is provided. There is information about how information is combined to make an assessment of the client.

Midwives Assessing Progress in Labour - Developing Knowledge and Skills in Employment

IA1

What is being Learned (W)

	IA1
W1 Understanding	
W11 Understanding of Situations	Salient and critical features Perspectives of participants (clients)
W12 Understanding of Colleagues and Work Unit	dispositions relationships
W13 Understanding of Organisation	Policy Mission, aims, customs
W14 Understanding of Self	Dispositions and bias how one learns strengths and weaknesses conditions affecting quality of performance
W15 Strategic Understanding	
W2 Skills	
W21 Technical Skills (/ clinical)	diagnostic skills
W22 Learning Skills	reflection recognising relevant knowledge transfer of knowledge from other contexts
W23 Interpersonal Skills	Persuading, Explaining, Listening, Supporting client
W24 Thinking Skills	decision making, evaluation skills planning and controlling ones own work problem solving
W3 Propositional Knowledge	W32 Specialised Occupational Knowledge
W4 Knowledge Resources and How to Access Them	
W5 Judgement	W52 evaluation W53 strategic decisions W54 staff issues W55 prioritising

How is it Being Learned (H)

H1 working for Qualifications	specialist, mid career
H2 Short Courses	
H3 Special Events	
H4 Materials	
H5 Organised Learning Support	
H6 Consultation and Collaboration within Working Group	feedback from colleagues (informal comments) sharing mistakes demarcation boundaries
H7 The Challenge of the Work Itself	experience listening and watching anticipation building a picture self set goals (for skill development) learning from mistakes difficult problems atypical case
H8 Consultation Outside the Working Group	
H9 Life Outside Work	

Factors Affecting Learning (F) Should this be Performance ?? or Approaches to Assessment of Progress ??

Personal characteristics	
F1 Confidence	F11 Confidence in knowledge and skills F12 Sufficiency of experience F 13 Dealing with uncertainty taking risks self-evaluation (realistic expectation about ones performance)
F2 Motivation	to do the job (not miss delivery) to please clients
F3 Capability / Prior Knowledge (as W)	
The Micro Context	
F4 How a person is managed	autonomy and professional discretion manager as creator of micro climate manager as role model accountability
The Macro Context	
F6 The organisation	Roles and expectations demarcation for safety credibility
F7 Professional Bodies	

WHAT IS BEING LEARNED (W)

W1 UNDERSTANDING

W11 UNDERSTANDING OF SITUATIONS

3 of Eraut's (1998) categories have been identified:

- A - Salient and critical features
- B - Perspectives of participants (interpreted as clients)
- C - Patterns and trends over time

Each of the five transcripts included phrases in which **salient or critical features of the situation (A)** relating to assessing progress were apparent. To qualify the statements had to demonstrate awareness of the complexity of the situation, and the relationship of each sign or symptom to each other. E.g.

'Progress isn't always dilatation, it can be the baby coming through the pelvis, or her membranes may have ruptured. ... And perhaps the baby has rotated.' (MI5 - 184-188).

'I usually just turn them on their side and let the head come down. ... you just need to look at anal dilatation to know that the head is coming down. .. If this goes on for a long period and I am not seeing any progress then I would probably do a VE to confirm.' (MI3 - 353-357).

All five transcripts also demonstrated an **awareness of perspectives of participants' (B)**. This was interpreted as relating to clients as other categories dealt with employees. There were examples of the respondents listening to the client to get her point of view on what was happening with her labour (a history). The midwives seemed very influenced by the pain the woman was experiencing. The woman's report of pain and need for analgesia was given priority over the midwives view of the situation

'So if she needs Pethidine, we would go ahead and sedate them. You would still not call them in labour. You don't have the right to give them Pethidine, and you call the doctor and he would prescribe.' (MI5 - 330-333)

Non-verbal sounds, posture and behaviour is also used to assess the woman's reaction to labour and as an indicator of progress.

Requests from clients for vaginal examinations to obtain specific information were dealt with differently according to the circumstances and the midwife. Most requests were related to diagnosing that labour had commenced. If signs of labour were present the midwife may do a vaginal examination even if she would rather wait and see. Sometimes women were persuaded to wait, and sometimes the midwife would not carry out the client's requests. One midwife gave an example of this:

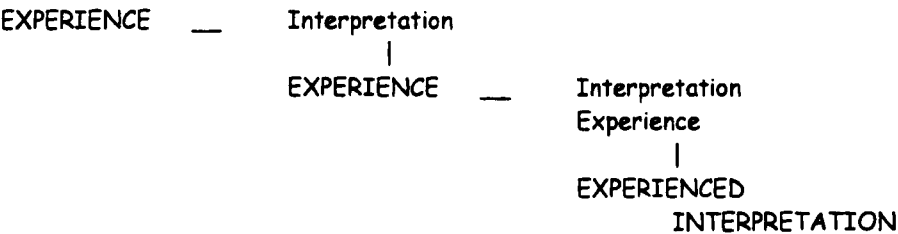
'The other day a woman 'phoned up and said ' 'If I come down would you examine is to see if I'm in labour?' ' and I said No I won't. ... Why do I need to do a vaginal examination to see if you're in labour? I said I'm not going to. .. You can certainly come down and I'll assess you if that's what you want. I said No way I would do a vaginal examination until you're in labour.' (MI3-257-264).

This appears to be a situation when legislation takes priority over the requests of clients. Midwives are permitted to carry out vaginal examination In the case of a labour at term, or if there are ruptured membranes (to exclude cord prolapsed).

I think a new policy permitting midwives to discharge women who do not make any progress despite signs of labour may be causing confusion. The use of the vaginal examination may be to ensure that there are no 'objective' signs of progress prior to discharge.

While all five demonstrated understanding of B there were differences between midwives. All used history and responded to pain perception, but there were differences in the extent that signs influenced judgement. One midwife (MI4) was less likely to weigh all salient features (A). Although she understood what was relevant, she prioritised objective criteria and followed 'policy' to a greater extent. MI2 also followed policy despite the fact that she recognised that she did not need to do so. Both of these midwives seemed more reliant on objective measures than the other three. **Is this cognitive dissonance (scientific vs. holistic perspective) ?**

Only two of the midwives (MI3 and MI5) spoke substantially about patterns and trends over time (C). They seemed to need to explain current practice in a context of developments in midwifery practice, or policy change within the unit. These midwives had the longest history in midwifery and understood recent practice in the light of conditions of the past. This seemed to influence their reaction to changes policy. Assessment of the situation appeared to be based on a lot of different experience. They considered situations differently, and it seemed to be because of the variety of experiences and trends they had lived through. Perhaps they were not experiencing practice as a snapshot, or as an album, but more as a series. Could this be experience in the past influencing experiences in the present? Is Remembering Influencing how Experience is Interpreted?



Experienced interpretation seemed to lead to an ability to recognise contradictions in practice trends e.g. Combining holistic care with advocating epidurals. It also caused conflict when experiences and priorities of the past were contradicted by changes in policy as a result of research. Both midwives were unhappy that Morphine was now the preferred analgaesia in place of Pethidine. Their experience and 'teaching' had made them apprehensive about its routine use in labour (side effects).

These two shared a history in midwifery practice. The stories they told collaborated, and one midwife assumed the other had told particular stories. These old wives tales go back to the 1960's. Are these two midwives memory bearers?

W1 Understanding - W11 Understanding of Situations

Salient and critical features MI1	65 - 69, 73 - 77, 137 - 142, 186 -190, 198, 393 - <u>394</u>
	MI2 99-104, 111-119
	MI3 172-175,353-358
	MI4 135
	MI5 636-645, 727-730
Perspectives of participants (clients)	MI1 78 - 80, 91 - 94, 590 - <u>598</u>
	MI2 331-334, 367, 369-370
	MI3 272-280,
	MI4 15, 19, 52, 94, 130, 131
	MI5 128-131
Patterns and trends over time	MI3 41, 68-71, 96-97, 100, 177-179, 185-186
	MI5 1-19, 54-64

What is being Learned (W)

W1 Understanding		MI1	MI2	MI3	MI4	MI5
W11 Understanding of Situations	Salient and critical features	65 - 69, 73 - 77, 137 - 142, 186 - 190, 198, 393 - 394	99-104, 111-119,	172-175, 353-358	135	636-645, 727-730
	Perspectives of participants (clients) Patterns and trends over time	78 - 80, 91 - 94, 590 - 598	331-334, 367, 369-370	272-280, 41, 68-71, 96-97, 100, 177-179, 185-186	15, 19, 52, 94, 130, 131	128-131
W12 Understanding of Colleagues and Work Unit	dispositions	442 - 444,		29, 114-115, 188, 239, 362-364, 381	134	1-19, 54-64
	relationships	442 - 444,	196-199, 209-210	379-380, 388		24-29, 192
W13 Understanding of Organisation	Policy	442 - 444,	226-288, 61-62, 127-136	4, 44	<u>15, 17, 86</u> 17	73
	Mission, aims, customs	442 - 444,				
W14 Understanding of Self	Dispositions and bias	442 - 444,	72-76, 111-119	10, 88, 255-256, 362-364, 381	56	22, 51, 142, 176, 479
	how one learns strengths and weaknesses conditions affecting quality of performance	442 - 444, 442 - 444,	263-273	136-137		
W15 Strategic Understanding	Seeing own work in institutional context	250 - 251, 442 - 444,	72-76, 263-273	341-344	56, 135	
				24		
W2 Skills						
W21 Technical Skills	diagnostic skills	240 - 243, 442 - 444,	263-273	161-162, 379-380	17, 19, 52, 135	
	Reflection	648 - 661		161-162	135	
W22 Learning Skills	recognising relevant knowledge	648 - 661	283-286, 311-316	313-315	121, 129	172-197, 184-186
	transfer of knowledge from other contexts	648 - 661				
W23 Interpersonal Skills	Persuading, Explaining, Listening, Supporting client	89 - 90, 393 - 394		258-264, 240, 386-393, 455, 459		128-131
	decision making, evaluation skills	89 - 90, 393 - 394		448-451	143	
W24 Thinking Skills	planning and controlling ones own work	169 - 173, 186 - 190	323-326	411-415, 417-418	17	
	problem solving	100 - 103 184 - 189	211-213	412-415		
W3 Propositional Knowledge	W32 Specialised Occupational Knowledge	43 - 53, 64 - 65, 137 - 142, 186 - 190, 264 - 268,	6-12, 23-30	253, 287-288, 298-299, 444-446		515
	W31 Knowledge taught during training for occupation W34 Knowledge of systems and procedures			20		
W4 Knowledge Resources and Judgement	W34 Knowledge of systems and procedures			4, 416		162
	W52 evaluation W53 strategic decisions W54 staff issues W55 prioritising	100 - 103 106 - 108 96 - 98	87-93			

How is it Being Learned (H)

H1 working for Qualifications	specialist, mid career initial	648 – 661		114-115, 125-127, 291		
H2 Short Courses						
H3 Special Events						
H4 Materials						
H5 Organised Learning Support	Apprenticeship Role model Designated experts			136-137 136-137 390-391	70, 135, 158	175
H6 Consultation and Collaboration within Working Group	feedback from colleagues (informal comments) sharing mistakes demarcation boundaries	380 - 381 380 - 381 564 -567	127-145 220-225	 10, 24, 44, 219, 282-283	 171	 277-179
H7 The Challenge of the Work Itself	experience listening and watching anticipation building a picture self set goals (for skill development) learning from mistakes difficult problems atypical case	212, 393 – 394 215, 217 - 218 223 275 - 276 280, 274 - 275, 442 - 444, 311 - 355	 14-21, 31-35, 37-43, 44-46 168-169 263-273 159-167, 280-286	 312 161-162, 199-201 161-162	 29 19, 23	 22, 155-156, 298, 731 341, 391-392, 428-430, 731
H8 Consultation Outside the Working Group						
H9 Life Outside Work					121	

Factors Affecting Learning (F) Should this be Performance ?? or Approaches to Assessment of Progress ??

Personal characteristics							
F1 Confidence	F11 Confidence in knowledge and skills	84 - 85, 186 - 190, 212, 393 - 394, 442 - 444, 399	77-78	291			42-48, 76, 298, 380-381
	F12 Sufficiency of experience	85 - 86, 212, 393 - 394, 404		120, 291	135		155-156, 731
	F 13 Dealing with uncertainty	90 - 91, 186 - 190, 393 - 394, 404, 442 - 444,	122-126, 150-152		60		151, 734-735
	taking risks	404		435	60, 68		22, 765
	self-evaluation (realistic expectation about ones performance)	397 - 398, 442 - 444,		291			
F2 Motivation	to do the job (not miss delivery)	247 - 250					
	to please clients	247 - 250					
F3 Capability / Prior Knowledge (as W)							
The Micro Context	autonomy and professional discretion	229 - 230	72-76	4, 239, 248-249, 282-283, 272-280	15, 17, 84, 171		71-73, 80-83, 162, 176
F4 How a person is managed	manager as creator of micro climate	393 - 394		379-380,381			71-73
The Macro Context	manager as role model accountability	393 - 394		24			
	Pressures		127-145				
F5 Culture of Workplace	Avoidance of Blame (acceptance)	444 - 445,	127-145				
	Collaboration and team work		220-225				
F6 The organisation	Meeting clients information needs	79 - 84	180-196, 365-367		97		
	Roles and expectations	383 - 385,		10, 24, 44, 83-84, 379-380, 381	99, 171		
	relatives	383 - 385, 442 - 444, 750 - 754	180-196	341-344			
	demarcation for safety	452		10, 24, 44, 219	99, 100, 101, 115		
F7 Professional Bodies	credibility		180-196				

Phase 2

Second interview with sample 1

Validation of results:

1. Discussion of paper with analysis
2. Clarification of
 - Fig 1 (open code categories)
 - Fig 2 (classification of codes)
 - Fig 3 (relationship between categories)
 - 'Telling the now' in terms of evolving practice style.
3. Discussion of and adjustment to 'Template of anticipated progress'.
4. Additions to 'Template of anticipated progress'.

The following issues will be explored:

1. The interplay between the factors that seem to comprise assessment:
 - Diagnostic orientation
 - Diagnostic processes
 - Diagnostic indicators
 - Vaginal examination. Refer to Fig 2
2. How indicators are learned about by midwives and how midwives learn how to use them within clinical decision-making. In particular the reasons why specific indicators are selected which are high or low in intrusiveness.

High Intrusiveness <-----> Low Intrusiveness
Reasons

3. The relationship between the expectation within the unit influenced by management and policy and the way midwives develop a concept of individual progress and develop a way of working.
4. How changing contexts of care influence the range of options (as in 1) open to the midwife. This is concerned with prioritising.
5. How knowledge of previous 'cases' (outcomes, organisation etc) influences decision-making. Examples of previous cases that have significance for the midwife.

An opportunity for additional comments by respondent.

Presented at Repeat Interviews: A description of the work so far completed, including the methods employed and the results obtained.

Midwives were asked to share details of their approach to assessment, the factors influencing their learning and practice and their views about factors, which shape their judgements. Seventeen open code categories emerge (Fig. 1).

Fig 1 - OPEN CODE CATEGORIES:

INFORMATION GATHERING
INFORMATION WEIGHING
INFORMATION UNCERTAINTY
ACTIVITY STYLE
DISCRETION
SPHERE OF PRACTICE
LEARNING AND WORKING
PROGRESS CLASIFICATION
CONTRACTIONS
VAGINAL EXAMINATION
DESCENT OF HEAD
PAIN
CERVICAL ATTRIBUTES
FETAL MEMBRAINES
MATERNAL CONDITION
MATERNAL ACTIVITY LEVELS
FETAL FACTORS

Fig 2 - CLASIFICATION OF CODES:

DIAGNOSITIC ORIENTATION

- ACTIVITY STYLE
- DISCRETION
- SPHERE OF PRACTICE
- LEARNING AND WORKING

DIAGNOSTIC PROCESS

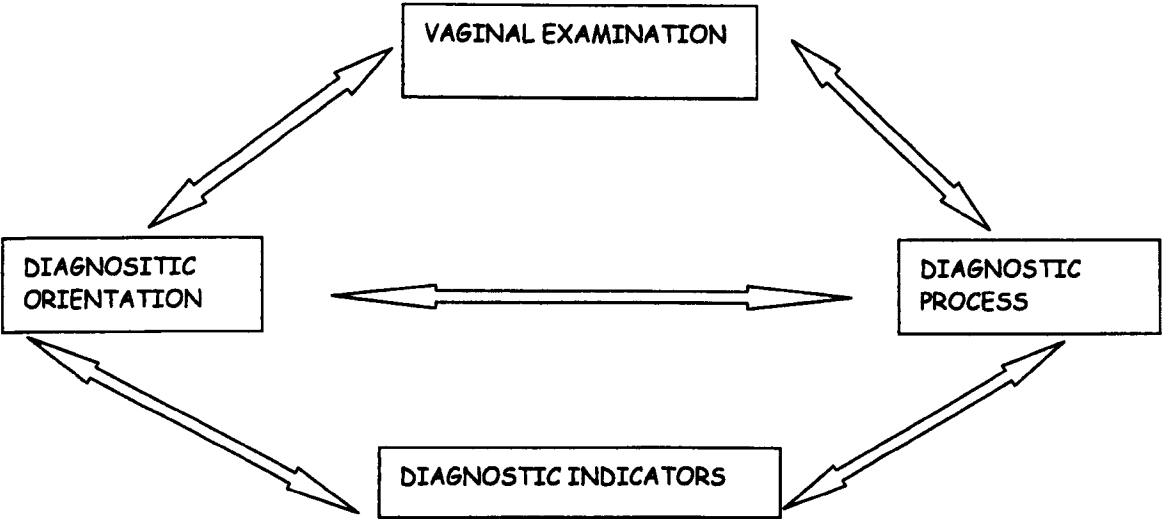
- INFORMATION GATHERING
- INFORMATION WEIGHING
- INFORMATION UNCERTAINTY
- PROGRESS CLASIFICATION

DIAGNOSTIC INDICATORS

- CONTRACTIONS
- DESCENT OF HEAD
- PAIN
- MATERNAL CONDITION
- FETAL CONDITION
- CERVICAL ATRIBUTES
- FETAL MEMBRANE

VAGINAL EXAMINATION

FIG 3 - RELATIONSHIP BETWEEN CATEGORIES



Categories were developed according to properties and dimensional range (Appendix 1), and can be grouped within four classifications (Fig. 2). The first two classifications are concerned with the way midwives are oriented towards assessment of progress (Diagnostic Orientation) and the processes involved in the assessment (Diagnostic Processes). The third classification is comprised of the information available (Diagnostic Indicators). The fourth classification is Vaginal Examination. This could be subsumed within the classifications of Diagnostic Orientation or Diagnostic Process, however, it is presented as a classification because there is a tension between the examination as a way of generating diagnostic indicators (in a similar way to abdominal palpation) and, as an indicator of and influence, of Diagnostic Orientation and Diagnostic Process. Fig 3 infers the relationship of the classifications at this stage of the analysis.

The following sections demonstrate the relationship between categories and the data. The work by Eraut et al (1997) investigating learning by professionals has provided a useful structure to examine the knowledge and skills midwives develop around assessment of progress in labour, from the challenge of doing the work.

Development of knowledge and skills from the challenge of the work itself.

The challenge of the work (assessing progress in labour) provided opportunities for midwives in the study to develop knowledge and skills. These appear to be associated with: experience, listening and watching, anticipation, building a picture, self-set goals (for skill development), learning from mistakes, difficult problems and atypical cases.

A major source of knowledge about the nature of childbirth and the management strategies adopted by midwives seems to come from experience. associated with intuition and use of well tested solutions. The midwives interviewed recognise the association between experience and intuition that comes from practicing as a midwife, but practical midwifery and experience appear to be related while not being quite the same.

Perhaps practice means 'hands on' engagement in midwifery, and is what Price and Price (1993) term exposure. The passage of time ('over the years') does not lead to expertise. However, exposure plus reflection are associated with experience. According to Radwin (1998) 'experience enhances recognition of subtle patient characteristics and a gestalt impression of patients problems'. The gestalt will be individual to a particular midwife, reflecting learning opportunities provided and capacity and skills to make use of them.

Experience therefore, enables midwives to adapt knowledge of diagnostic indicators, and reconsider 'rule of thumb' practice in light of conflicting priorities and available information.

Midwives prioritise certain diagnostic indicators because their experience tells them that this is indicative of problems, or progress. The level of the presenting part (descent of the head) can be critical to diagnosing obstructed labour, and it is a precursor of dilatation of the cervix; an important indicators of progress.

Midwives obtain diagnostic indicators of progress in a number of ways: listening, watching, palpating and examining. Non verbal communication and information elicited verbally can be combined and compared with information elicited during abdominal and vaginal examination. Over time midwives learn that requests for analgesia, breathing noises and posture can be

probable indicators of phases of the birth process. Midwives learn this from cases, and from other midwives sharing insight or from observing practice (how they 'do the job').

Two important modes of informal learning are the challenge of the work itself and learning from other people. The challenge of the work itself appears to be the most important for midwives learning how to assess progress in labour, where midwives are required to adapt and apply knowledge and skills to meet particular needs of specific clients. Slotnick (1999) identifies this type of learning stimulus for doctors, as learning from specific problems. To a lesser extent, midwives also learn from other midwives.

There was a lot of discussion within the interviews about recognition of the onset of labour, and diagnosing established labour. Requiring midwives in the unit to confirm 'false labour' and discharge women is a 'novel problem' for which deliberative adaptation of existing practice knowledge is required. As a result midwives seem to be more aware of the diagnostic process they are applying to this situation, as the responsibility had previously been with the medical staff. Appendix 2 contains part of a transcript in which a midwife provides a lot of detail about how her practice has developed as a result of experience. The researcher has inserted categories to this.

Development of a Model of 'Normal' Progress ('Template of Anticipated Progress')

Midwives use rules and procedures within the diagnostic process of information gathering, which can be considered as technical. Decisions about when to use such procedures, weighing of indicators and the relationship between information uncertainty and progress classification, reflect indeterminacy (Walker and Sibson 1998). According to Price and Price (1993) midwives develop a 'performance repertoire' of knowledge that underpins practice. This means the midwife can select responses, and adapt responses safely when necessary. Eraut (1998) identifies 4 criteria associated with developing understanding of situations: similarities and differences, patterns and trends over time, salient and critical features and perspectives of participants. These criteria all appear to have relevance to midwives understanding of the nature of progress in labour and the application of information gathering.

Recognising similarities and differences in the way labours progress and the way women respond emotionally and behaviourally is central to midwives progress classification, and will contribute to the performance repertoire. There are indications of the development of a 'Template of Anticipated Progress', to help them to understand situations, and against which midwives can compare each case:

'It's all of these factors taken together that help you to build up this picture.'

Careful observation and assessment, detecting deviation from the 'template of anticipated progress' (Difference), may lead to active investigation, such as performing a vaginal examination to obtain an 'objective' measurement:

'..there would be certain things that would instigate ... a vaginal examination. .. if progress wasn't deemed to be satisfactory, if the contractions went off. .. problems with the fetal heart rate, .. '

The examination may provide information which when weighed with other information confirms normality, or alerts the midwife that labour is not normal. Case building leads to awareness of a broader range of normality, which may not fit the 'template of anticipated progress' exactly. For example, progress can be more rapid and the signs and symptoms less marked than the 'Template of Anticipated Progress' would suggest:

'I would never have dreamt she was in active labour, ..., her tightenings were so fleeting. And she was 5 centimetres.'

The 'Template of Anticipated Progress' may in the above case represent average progress. This may lead a midwife to adapt her model of 'normal progress', with allowances made for more rapid or slower progress.

It is evident in all transcripts that salient or critical features of the situation were identified. Statements demonstrate awareness of the complexity of the situation (assessment of progress), and the relationship of each sign or symptom to each other. For example, when cervical dilatation is compared to other methods of estimating progress it is not thought to provide conclusive information:

'Progress isn't always dilatation, it can be the baby coming through the pelvis, or her membranes may have ruptured. ... And perhaps the baby has rotated.'

Vaginal examination is considered useful to confirm external diagnostic indicators when there is information uncertainty:

'I usually just turn them on their side and let the head come down. ... you just need to look at anal dilatation to know that the head is coming down. .. If this goes on for a long period and I am not seeing any progress then I would probably do a VE to confirm.'

Recognising what is salient or critical is important is distinguishing between the emerging diagnostic indicators, indicating progress and normality or the development or recognition of pathology. There is therefore a substantial relationship between these and the patterns and trends indicating progress in labour described.

In interviews each of the midwives demonstrated an awareness of perspectives of participants / clients. This involved respondents listening to the client to get her point of view on what was happening with her labour (a history). Midwives seemed very influenced by the pain that the woman was experiencing. There was recognition that pain perception varied, and was not always a reliable indicator of progress. The need for analgesia was given priority over the midwives interpretation of progress. A match between reported pain and other diagnostic indicators was not required when administering analgesia. This is an indication that diagnostic process and providing care can not be easily separated.

Four of the midwives demonstrated an understanding of the patterns and trends over time that they observed while caring for women during labour. The midwives took into account various diagnostic indicators, which, when combined with knowledge of physiology and experience were interpreted intuitively and often in a holistic way:

'..you ask about backache, a show etc. Using physical signs. "How do you feel?" Her legs are going stiff, all the signs of the head coming down'

Contractions of the uterus seemed to be important diagnostic indicators of the trajectory of progress. The regularity and strength of contractions could be directly assessed using abdominal palpation. An indirect assessment based on the reaction of the woman to the contractions is also possible, linked to a requirement for analgesia. In early labour women usually obtain relief from oral analgesia such as Co-codamol, while later they may require intra-muscular analgesia.

One midwife gave a lot of attention to breathing patterns and the reactions of the woman to the labour. A qualitative variation in breathing pattern as labour progressed was recognised by this midwife. This was used as an indicator that the labour was well progressed and the transition from the phase of dilatation of the cervix to the phase of expulsion of the fetus.

The noises of breathing associated with open glottis pushing attempts are the beginning of expulsive effort stimulated by descent of the presenting part. The midwife transmitted this insight to student midwives. This information was combined with physiological factors, which indicated an understanding of the effects of the contractions on fetal physiology.

Dilatation of the cervix is a diagnostic indicator of progress, perceived as an objective sign and therefore, considered more reliable. However, it is not always present when other signs of progress are present, and consistency and effacement of the cervix may be more indicative of progress in early labour:

Confidence in intuitive assessment and midwives experience and activity style.

There was a tendency for all of the midwives to tell the 'now' in terms of evolving diagnostic orientation, and contrast their approach to practice then with how they practice now. Remembering events in the past seems to be important when accounting for diagnostic orientation at the present time. One midwife provides detailed information about how she had changed her approach to assessing progress. This was based on accumulation of experience and a gradually increasing confidence in her skills and knowledge.

Radwin (1998) concludes that experience with individual patients confers generalisable knowledge about patients with similar problems. This may infer confidence. If the midwife is confident and observable signs and external examination provide evidence that fits with the 'template of anticipated progress', then the midwife is more likely to rely on intuition when assessing labour. This form of less intrusive monitoring involves 'vigilant watchfulness' and time with the woman. The above authors suggest that knowing the patient is a decision making process, which results in individualisation of care. Generalisable knowledge of individual patients and knowing the patient, influence the way that midwives use skills or prioritise skill development. Organisational factors, such as individual midwives regularly caring for more than one woman in labour, or having other responsibilities influences the diagnostic process. Pressures, which require them to leave the woman, or 'know' what progress is being made

influences how skills are used and develop. Some circumstances encourage midwives to perform a vaginal examination.

Two midwives seemed less likely to weigh all salient features. One understood what was relevant, but prioritised objective criteria and followed 'policy' to a greater extent; despite the fact that she recognised that she did not need to do so. When required, she could rely on less objective signs with relative confidence. These two midwives seemed more reliant on objective measures than the other three, which may be explained in terms of the preferred 'activity style'. One midwife recognised that she was able to monitor labour when the client did not agree to vaginal examinations but said she missed the information from a vaginal examination at particular stages of labour. Not wanting to rely on abdominal palpation to exclude abnormal presentations appears as a major reason for performing vaginal examination:

The views of clients influence the diagnostic process. Requests for vaginal examinations were dealt with differently according to the circumstances and the midwife. Most requests were related to diagnosing that labour had commenced. If signs of labour were present the midwife may do a vaginal examination even if she would rather wait and see. Sometimes women were persuaded to wait, and sometimes the midwife would not carry out the client's requests. In this situation legislation takes priority over the requests of clients. Midwives are permitted to carry out vaginal examination if there are ruptured membranes (to exclude cord prolapsed) or in the case of a labour at term. When clients choose not to have vaginal examinations the midwives do not seem concerned, and instead rely on more intuitive assessment. Midwives may need to develop a different approach to estimating progress when labour progresses physiologically but the reactions of the client to the diagnostic process are different or extreme.

While all five midwives demonstrated understanding of the perspective of clients there are differences in the extent that non verbal sounds, posture and behaviour are used to assess the woman's reaction to labour and as an indicator of progress. All used history and responded to pain perception, but there were differences in the extent that signs influenced judgement.

Diagnostic orientation is apparent in the views of the midwives towards the organisation. There seems to be strong views about unnecessary vaginal examination, or involvement of medical staff. This is related to doctors repeating examinations, or demarcation between the professionals. It seems that the organisation is critical of mistakes by midwives, but this is more likely to be expressed verbally if the midwife is less experienced. This may explain why midwives are aware of the 'norms' within the unit and tend to adhere to the 'norms' of practice. If a midwife misses something having followed the unit 'norms' she is less open to criticism, even though those who have a lot of experience seem to have confidence that they know what they are doing. This may be because they have had more opportunity to apply discretion in adopting different approaches; and as a result have greater confidence in exercising discretion, which recognises individual client perspectives and preferred activity style.

APPENDIX 7: SUMMARY OF TRANSCRIPT

7.2 Summary of individual respondents transcript(s) using categories of model.

Summary of individual respondents transcript(s) using categories of model.

IA 1	P1 - 1 st Interview & P2 - 2 nd Interview (interview [P2] & handnote response to analysis [P2 HN])
Diagnostic Orientation	
Activity Style	An expectant approach is described that makes use of holistic, intuitive 'evidence' when the situation permits. Client need for precision, client social context and organisational factors may influence style.
Discretion	Experiences a high degree of individual discretion with colleagues accepting differences in approach. Recognised as experienced, reliable and senior to other midwives, which permits different working.
Sphere of Practice	Employed as a Service Manager for midwifery (also Supervisor of Midwives). Occasional LW work.
Diagnostic Processes	
Information Gathering	Uses a holistic approach to assessment that is based upon the need for care and the need to determine care. Uses behavioural changes, maternal descriptions and abdominal examination to determine progress. Uses VE when required or if client requests an immediate precise diagnosis.
Information Processing	Presents examples of comparing various signs of progress with client symptoms. Weighed in a context of individual clients reactions. Gives emphasis to descent, contractions and reactions. Uses VE sometimes to 'confirm .. other findings' [48] '... all it gives you is a baseline. ... you don't know if she's going to progress or not .. It tells you if there is effacement or dilatation of the cervix, but unless she is well advanced in labour it doesn't tell you that she is definitely on her way.' [169-173] '... a vaginal examination .. doesn't confirm one way or another.' [168]
• Information Weighing	Not always a problem. If anticipated events do not materialise or there is conflict between signs and maternal reaction or precision is required for social reasons (maternal) sometimes that if they aren't sure weather or not the contractions are doing anything they can be very agitated ... ' [82-63], for a rapid diagnosis 'sometimes if you're pushed, you'll do it to say yes she is or isn't in labour. Because you've got other commitments.' [97-99] or suspicion of abnormality '.... you .. doubt ... whether she is or isn't progressing. And then you might be tempted to do a vaginal examination. I couldn't put a time on it, - it depends on different circumstances. ' [903-907] then a VE may be used.
• Information Uncertainty	
Progress Classification	A classification of labour is contingent upon palpation, contractions, reactions and well-being. Further information is needed if a degree of uncertainty is not tolerated by client, prior to discharge as dilatation of 3cm or less is equated with non established labour, or if problems are suspected.
Learning and Working.	
• Confidence	Confidence in own knowledge and skills and the physiology of birth. Able to share mistakes '... when you've got ..experience, you're .. willing to expose yourself. I came straight out with it and said 'I missed a breech. Christ!!' [444-446] '... you have within yourself ... this thing 'I don't often get it wrong' [431-432] 'I Reflecting back I felt as if I had to have a certain level of skill, I had to know how to do a vaginal examination, I had to know how to palpate contractions, and it was very precise, then I think you come to a point in your career when you're gaining more .. and more experience. And you become less precise about things. And it's not the be all and end all if you can't get the precise dilatation. '[186-194]
• Experience	20 years FT experience in midwifery at NT, including clinical management of the labour ward and Service Management. Involved IP Care in hospital to help or for updating. St/M Newcastle.
• Knowledge and skill	Has developed midwifery skills in practice to provide expectant management and avoid routines. Completed a full time post reg. Diploma in midwifery (1 yr) and a Post Reg. Degree (2yr) with the higher award (ENB) focussing on intrapartum care. A supervisor of midwives (course) and a leader of change in the midwifery service. Learning from 'mistakes': '... a lot of liquor, and ... it [fetal head] just floated out [of the pelvis], but the other cues had been there that the head was in. It was fixed, otherwise I wouldn't have done it. Vaginally -2, everything seemed fine, bulging membranes. I don't know how to account for it. [P2: 677-680] '..... at 6-7 cm, now I wouldn't even dream of breaking anybody's waters... There's no indication what so ever. But then that was the practice, and I just went along with it, and just did it. And didn't really think about it. And maybe reflecting on it afterwards, and the shock that I had had. Doing it, .. what happened, and what could have happened. That really made me very, very cautious.' [P2: 686-691] Has transferred knowledge gained on a post registration degree to other aspects of practice: '... on my degree the Valsalva manoeuvre [topic for Higher Award Study]. I was very ridged. they had three pushes and .. had to hold their breath, and they had to be in control. when I looked at that closely and the relationship I had with the woman, and when I started to look and think about a different way of doing that, and got the research, and read about it and looked into it. I started to develop a different approach to that stage of labour. Not being in control. Letting the woman do what she wants. some of them if your supporting them, it's easier for them to do that. I think that's merged into every element of practice ... '[650-663] Personal theory has developed to explain signs observed during transition: '... the pains are lower down and they're feeling them in the front. And they're holding there self. And ... you can tell that when they've got the contraction there is a difference. Before when the contraction is all over starting in the fundus and ... , they're not really holding any particular part of the abdomen. But towards the end, the knees are drawn together, they've got the shooting pains in the vagina, and they're holding they're lower abdomen, and you can tell that things are moving on. .. often the buttocks are clenched, and they're feeling very tense 'down below', and you know that descent's happening and

	rotation. Well I just know that it is at that point. ... you're trying to get them to breath through and to open out. But they're instinctively holding themselves tight and ridged. I always think that they should let themselves go, but maybe when I reflect on it, maybe holding themselves tight increases the tension in the pelvic floor and helps rotation. I don't know. We don't know. But they do that instinctively so maybe that's mother nature's way of doing it. And it doesn't seem to stop progress.' [812-831]
<ul style="list-style-type: none"> Organisational and societal factors 	<p>Support midwives and leads practice innovation in collaboration with consultants. Recognises that organisational factors influence a midwives ability to determine her approach to assessment in hospital. Conflicting information '... she's making that much noise and carry on, but she's not even in labour, and you think 'what's going on with her, like?' ' [P2: 589-591], team-working (with G grade co-ordinating) '... if you are in charge of the labour ward, and you have got a few women in labour you want to know what stages they are up to ...' [P2: 159-161], '.... it's also about the midwife and her ability to articulate her decision making. With ... other staff. to legitimise her work load. And if she is good at doing that, then she may be less likely to be made to gather hard data, via a vaginal examination, because she is respected by her colleagues for being right, and being a good judge of women's progress in labour, without vaginal examination.' [P2: 308-314] workload 'Doing a vaginal examination sometimes if you're pushed, you'll do it to say yes she is or isn't in labour. Because you've got other commitments.' [97-99], and pressure from 'partners' the partner ... putting the pressure on ... 'is she or isn't she'. Because they want to make arrangements' [91-93]. '... they're either admitted if they're in established labour or deemed to be ... or they're discharged home. ... whilst I am happy to wait and see .. often the mother wants to know 'am I , or am I not in labour?' ... it's often difficult for the women. It's not like being at home, where you could be doing other things. If your on the labour ward what do you do with that time period? There's nothing to do. It's boring. And could they be at home for that period, and I think that's why it hinges on this examination. Because that gives them confirmation. '[157-167]</p> <p>'... if it was a home delivery the midwife would just pop along and say 'Oh you're getting on canny, Ill pop back in a few hours' or something, in the hospital situation it's different.' [P2: 285-287]</p> <p>Disagrees that there is a policy for VE in normal labour: 'There is no written policy for frequency of assessment for normal labour. There is for induction etc..' [P2 HN: 80-81]</p>
Diagnostic Indicators:	
<p>External Signs Descent of Fetal Head Uterine Contractions</p> <p>Fetal Condition Maternal Condition, Posture Pain</p> <p>Breathing noises Fetal Position</p>	<p>Prefers to use these in normal labour. 'Early labour I think is difficult.' [128]</p> <p>Assessed in 5ths palpable</p> <p>History from woman. Palpated to determine duration, interval and intensity. Monitored for progression. '.... the textbook thing about regular and getting stronger, but at a certain point in labour that doesn't happen.... I ...find, that as they're coming up to transition, second stage contractions often space right out. ... they might have been contracting 5 in 10, 4 - 5 in 10, and all of a sudden they peter out, but the contractions are different. If you're palpating them, whereas before I said they would be more widespread and you could feel them all across the uterus. they seem to be stronger, and more focused in the middle of the uterus. they might go down to 2, 3 in 10. And I wouldn't be worried about that. and they tend to last a bit longer, but they don't feel them right at the beginning. They feel them when they're right at the peak, and then they go on.' [846-861]</p> <p>Carries out admission CTG. F well-being determined in assessment.</p> <p>Emphasised as reaction to labour in diagnosis and care provided (pain management).</p> <p>In relation to dealing with 'pain' (walking, kneeling)</p> <p>Reactions and coping used in assessment. Does not generally prescribe IM analgesia according to the stage of labour. Used in assessment. Extreme reaction causes uncertainty in diagnosis.</p> <p>Assessment of maternal response to contractions (pressure).</p> <p>Position and Rotation</p>
<p>Internal Signs</p> <ul style="list-style-type: none"> Cervical dilatation Cervical effacement Fetal Membranes. 	<p>VE's carried out selectively.</p> <p>Used to confirm provisional progress classification or to provide information to client who requests greater precision because of social circumstances (arrangements for children etc). '... you know yourself - like an intuitive thing - you know if somebody's in established labour. But it's very difficult to express that, because it is intuition as opposed to definite confirmation.' [120-123]</p>
<ul style="list-style-type: none"> 1. Vaginal Examination Political concerns and dilemmas Objectivity 	<ul style="list-style-type: none"> Unpleasant procedure Interpersonal intrusion
<p>'.. that was for me. It wasn't for her. And I recognise that now. And now in my practice, I would say that I'm much more hands off, I don't feel I need to be in control of the labour as much as .. I did. I'm now happy to let the woman progress.' [253-257] 'I think it interferes with the woman, somebody that's really, really distressed, doing a vaginal examination only appears to add to that distress.' [61-63] '... a vaginal examination .. might tip the balance .. pushing them into labour when they're not quite ready. And there's no harm in waiting. You know you can hang fire as long as everything seems to be OK. You can wait.' [73-77] 'she's not listening to what her body's telling her. She's handing over control to you to say am I or am I not in labour. Expecting an answer from you. And sometimes a midwife can't give that from clinical abdominal findings alone. You need often a vaginal examination to confirm that.' [116-120]</p>	

APPENDIX 8: SCHEDULE FOR PROJECT

8.2 Part Time

8.3 Full Time

Midwives Assessing Progress in Labour - Schedule for Part Time Research Project

June - July 1998	1999	2000- 2001	2001 - 2002
Individual, 2 hour, unstructured, in-depth Taped Interviews (5) Conducted in Unit 'A' (case study)	<ul style="list-style-type: none"> • Analysis • Construction of Categories • Developing model 	<ul style="list-style-type: none"> • Prepare documentation for internal transfer / review stage. • Transfer to Ph.D. 	Paper presented at international conference (BERA) Application to Health Foundation for funding Preparing Draft Chapters on Methods and Literature

Midwives Assessing Progress in Labour - Schedule for Full Time Research Project

	7 January 2002 →	7 July 2002 →	7 January 2003 →	7 July 2003 →	Late January 2004
Preliminary Research	Individual, 2 hour, unstructured, in-depth Taped Interviews (5)				
Reference Group		Individual, taped, 2 hour Interviews (3) \$	Individual, taped, 2 hour Interviews (2) \$		
			Taped "Group (5) Int - Semi structured \$	Taped "Group (5) Int - Semi structured \$	
		Taped" Group (5) Thematic Int - 2 hours \$		Taped" Group (5) Thematic Int - 2 hours \$	
Ethnographic Observation		<ul style="list-style-type: none"> • Observation** (100 - 148 hours) • Opportunistic interviews ** • Case note entries** • Short (1/2 hour) Post observation taped interviews (20) 		<ul style="list-style-type: none"> • 20 hours completed 	
Qualitative Questionnaires		Census of Case Study (90)			
			Census of additional 3 midwifery units (200-250)		
Analysis	<ul style="list-style-type: none"> • Construction of Categories • Developing model 	Developing, testing and refining model		Final Analysis and Writing up.	
Related Activities	<ul style="list-style-type: none"> • Transfer to Ph.D. • Paper presented at international conference 	<ul style="list-style-type: none"> • Paper - J in Health and Social Care. First call March 2002 • Conference paper 	<ul style="list-style-type: none"> • Report for PPP 	Conference paper / journal paper	Submit PhD Report
				Prepare PhD Report	Submit PhD Report
				Prepare Report for PPP	Submit Report

* Plus hand notes on model & transcript.

** Hand notes

\$ Reference group interviews reduced to accommodate reviewer's advice - from 10 individual interviews to 5 from 6 group interviews to 4

\$ Start and completion dates changed from June 2001 - Late June 2003 to January 2002 to late January 2004.

APPENDIX 9: QUESTIONNAIRE

QUESTIONNAIRE

MIDWIVES ASSESSING PROGRESS IN LABOUR

The questionnaire is organised into three distinct sections made up of questions that focus upon each specific aspect. The sections are presented in the order: Organisational Factors, Individual Profile and Diagnostic Process.

This research is concerned with 'normal childbirth'. I take this to mean birth that is entirely free from medical and obstetric problems in this pregnancy or a significant obstetric history from a previous pregnancy that proceeds to spontaneous labour and progresses without intervention to an uncomplicated vaginal birth. The focus of this research is on 'low risk' cases, where care for individual women and fetus during labour can be both provided by midwives and determined by midwifery knowledge, skills and priorities.

I appreciate that Midwives care for almost all women during childbirth and that many who are obstetric cases because of identified risk factors or obstetric intervention in the process of birth proceed to vaginal births assisted by midwives. This research excludes such cases from the definition of 'normal childbirth' either because obstetric management is prioritised or the physiological processes may have been 'complemented' by obstetric interventions carried out by medical staff or midwives.

Organisational Factors: (The questions in this section explore the influence of the organisation on care and labour progress assessment strategies adopted by midwives)

PLEASE TICK THE BOX, WHICH MOST NEARLY REPRESENTS YOUR EXPERIENCE.

1. In the midwifery service where you work, are any women specifically designated as low risk cases?	YES	<input type="checkbox"/>	GO TO QUESTION 2
	NO	<input type="checkbox"/>	GO TO QUESTION 5
2. Are low risk cases identified as midwifery cases for care and management in labour?	YES	<input type="checkbox"/>	GO TO QUESTION 3
	NO	<input type="checkbox"/>	GO TO QUESTION 5
3. Is progress assessment for women selected for midwifery care different from that of women not selected as a midwifery case?	YES	<input type="checkbox"/>	GO TO QUESTION 4
	NO	<input type="checkbox"/>	GO TO QUESTION 5
4. Please describe the ways in which care and progress assessment is different when women are selected as a midwifery case.			
GO TO QUESTION 5			
5. If your employer has produced any 'guidelines for good midwifery practice' relating to assessment of intrapartum progress please describe them.			
GO TO QUESTION 6			

PLEASE TICK THE BOX, WHICH MOST NEARLY REPRESENTS YOUR EXPERIENCE.

6. Are obstetric medical staff involved in the management of all intrapartum cases?

YES

Comments:

NO

PLEASE TICK THE BOX, WHICH MOST NEARLY REPRESENTS YOUR POSITION / VIEW / EXPERIENCE.

Several statements developed from project data are presented as questions 7 – 24.

PLEASE INDICATE THE EXTENT TO WHICH YOU AGREE OR DISAGREE WITH EACH. TO DO THIS, MARK THE GRID NEXT TO EACH STATEMENT. THERE IS SPACE FOR YOU TO MAKE ADDITIONAL COMMENTS AT THE END OF THE SECTION IN QUESTION 25.

To what extent do you agree with the following statements?

STRONGLY AGREE

AGREE

DO NOT HAVE A VIEW

DISAGREE

STRONGLY DISAGREE

7. There are advantages for women if midwives determine intrapartum progress and care.

8. Active management of labour involves routine procedures to assess and manage intrapartum progress.

9. Midwifery care is not very different from active management.

10. Where I work midwives are required to provide what can be identified as expectant management for those women who are designated as 'normal' or 'low risk'.

11. Pressure of work often influences the way I carry out progress assessment.

12. Expectant management recognises progress as quality of contractions, descent of the fetal head and client reaction.

13. With expectant management vaginal examination is used selectively (e.g. to confirm holistic diagnostic assessment).

14. Midwives are competent to use skills of assessment in a non routine way and provide expectant management.

15. Availability of labour ward beds never influences how I carry out progress assessment.

16. I have little discretion about implementing recommendations within practice guidelines.

17. When caring for healthy women in 'normal labour' of spontaneous onset, I am required to follow policy / protocol that specifies:

a. Intervention for 'slow' progress to accelerate labour,

b. Electronic fetal heart rate monitoring,

c. Rupture of fetal membranes in specified circumstances,

d. Regular assessment of cervical dilatation,

e. Regular assessment of the station of the presenting part,

f. Assessment of descent in fifths of the fetal head above the pelvic brim,

g. That a diagnosis of labour is based upon characteristics of uterine contractions plus cervical changes or Spontaneous Rupture of Membranes,

h. Other diagnostic action*.

* Please specify

18. I am not required to document any specified information about labour progress.

19. The labour record used for midwifery cases is the partogram / partograph / cervicograph.

20. I am not expected to complete the graph for cervical dilatation on the labour record when recording progress.

Several statements developed from project data are presented as questions 7 – 24.

PLEASE INDICATE THE EXTENT TO WHICH YOU AGREE OR DISAGREE WITH EACH. TO DO THIS, MARK THE GRID NEXT TO EACH STATEMENT. THERE IS SPACE FOR YOU TO MAKE ADDITIONAL COMMENTS AT THE END OF THE SECTION IN QUESTION 25.

To what extent do you agree with the following statements?

	STRONGLY AGREE	AGREE	DO NOT HAVE A VIEW	DISAGREE	STRONGLY DISAGREE
21. I can record a variety of information about progress and client state in the labour record.					
22. Colleagues and women do not accept a variety of information as credible evidence of progress.					
23. I must keep medical staff informed on the progress of women in 'normal labour'.					
24. The midwife in charge does not expect to be kept informed about the progress of all labouring women.					

25. Do you have additional comments for Questions 7-24? IF SO PLEASE IDENTIFY QUESTION NUMBERS.

Individual Profile *(These questions request information about your experience as a midwife)*

26. In what year did you qualify as a Registered Midwife?

PLEASE TICK THE BOX, WHICH MOST NEARLY REPRESENTS YOUR EXPERIENCE.

27. Did you complete pre-registration midwifery education in a:

a. University or Polytechnic?	b. College of Nursing and Midwifery?	c. College of Midwifery?	d. School of Midwifery?
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PLEASE TICK THE BOX, WHICH MOST NEARLY REPRESENTS YOUR EXPERIENCE.

28. When you qualified as a Registered Midwife (ENB) were you also awarded a Higher Education Qualification such as a:

a. Diploma?	b. Degree / Degree with Honours?	c. Other?
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PLEASE TICK THE BOX, WHICH MOST NEARLY REPRESENTS YOUR EXPERIENCE.

29. Since qualifying have you undertaken post-registration midwifery education such as:

a. None-accredited study? In house skills training Study days or refresher days Conferences Other	b. Undergraduate Study? Diploma level Degree level	c. Postgraduate Study? Certificate Diploma Masters level MPhil / PhD
--	---	---

30. Please list your professional qualifications.

PLEASE TICK EACH BOX, WHICH MOST NEARLY REPRESENTS YOUR EXPERIENCE.

31. What proportion of your total midwifery experience since qualifying has been spent working in:

	0-20%	21-40%	41-60%	61-80%	81-100%
a. Consultant Unit Hospital Midwifery?					
b. Community Midwifery					
c. General Practitioner Midwifery Units?					
d. Midwifery Led Units?					
e. Integrated team midwifery?					
f. Community midwifery providing intrapartum care in the home?					
g. Community midwifery providing intrapartum care in hospital?					
h. A consultant unit labour ward?					
i. Other (please specify)?					

PLEASE TICK THE BOX, WHICH MOST NEARLY REPRESENTS YOUR EXPERIENCE.

32. How is midwifery care organised in your current employing service?

a. Team Midwifery providing integrated service between hospital and community	
b. Team Midwifery as hospital and community teams	
c. Traditional hospital and community service	
d. Other (please specify).	

PLEASE TICK THE BOX, WHICH MOST NEARLY REPRESENTS YOUR POSITION.

33. How many years have you worked as a midwife for your current employer (include midwifery units incorporated with NHS re-organisations)?

0-5 years		21-25 years	
6-10 years		26-30 years	
11-15 years		31-35 years	
16-20 years		36+ years	

PLEASE TICK THE BOX, WHICH MOST NEARLY REPRESENTS YOUR EXPERIENCE.

34. If you have worked as a midwife for previous employers:

Employer	1	2	3	4
a. How long did you work there?	years	years	years	years
b. How long is it since you left the post?	years	years	years	Years

Comments:

Diagnostic Process:

This section consists of hypothetical cases based upon project data. Please read the information in the following four case vignettes and provide responses to the questions that follow each one.

Case Vignette 1:

Christine is healthy, aged 28, a primigravida, reporting a show and painful contractions. She is 41 weeks pregnant and has had no pregnancy problems. When admitted she is coping and mobile.

0800 Examined by Midwife.

Abdominal Examination:

Fundus: term
Lie: longitudinal
Attitude: flexion
Presentation: cephalic
Position: LOL
Decent: 3/5ths palpable
Fetal Heart: L flank
Regular rate
Contractions: 1 in 5, lasting 30 seconds, moderately strong

1700 Examined by Midwife.

Mobility and Interaction affected during contractions.

Abdominal Examination:

Position: LOA
Descent: 2/5ths palpable
Fetal Heart: Regular
Contractions: every 2 min, lasting 50-60sec, strong

2200 You Observe Christine

The fetal membranes have ruptured and clear liquor is draining. Christine is complaining of pain in her lower abdomen. During contractions she is distressed, holding her lower abdomen, bending over, making loud respiratory noises (grunts) and calling out, and her legs are shaking.

HAVING READ THIS 'CASE VIGNETTE' PLEASE ANSWER QUESTIONS 35-37.

35. In terms of labour progress, please provide the most likely explanation with justification for your diagnosis.

PLEASE TICK THE BOX, WHICH MOST NEARLY REPRESENTS YOUR POSITION.

36. Do you need any further information to confirm or test the diagnosis / explanation you provide?

YES

GO TO QUESTION 37

NO

GO TO VIGNETTE 2

37. Please explain what information you consider essential and your reasons for this.

Case Vignette 2:

Mary is a 25-year-old healthy multigravida with a 39-week gestation pregnancy who has come into hospital with abdominal pain. She has a 2-year-old healthy boy born by normal delivery.

1600 Examined by Midwife

Abdominal Examination:

Fundus: term
Lie: longitudinal
Attitude: partial flexion
Presentation: cephalic
Position: LOL
Decent: 4/5ths palpable
Fetal Heart: Auscultated L flank,
 Regular rate
Contractions: irregular and moderately strong.

Following the examination at 1600, Mary was given 2 Co-codamol. The abdominal discomfort reduced and Mary has slept.

2400 You Observe Mary

Mary has woken up with fairly strong contractions that are regular and have an interval of 3-4min.

HAVING READ THIS ‘CASE VIGNETTE’ PLEASE ANSWER QUESTIONS 38-40.

38. In terms of labour progress, please provide the most likely explanation with justification for your diagnosis.

PLEASE TICK THE BOX, WHICH MOST NEARLY REPRESENTS YOUR POSITION.

39. Do you need any further information to confirm or test the diagnosis / explanation you provide?	YES	Go to Question 40
	NO	Go to Vignette 3

40. Please explain what information you consider essential and your reasons for this.

Case Vignette 3:

1800 Jayne phones the labour ward for advice.

She has had cramps all day and she wonders if she has gone into labour, as her cramp is now more painful, intermittent and is fairly regular about every 10 – 15 min. She is 39 weeks by EDD, has had an uneventful pregnancy and has no medical problems. Her partner has just come home from work and said she should ring the midwife. Jayne seems fairly calm.

HAVING READ THIS 'CASE VIGNETTE' PLEASE ANSWER QUESTIONS 41-43.

41. In terms of labour progress, please provide the most likely explanation with justification for your diagnosis.

PLEASE TICK THE BOX, WHICH MOST NEARLY REPRESENTS YOUR POSITION.

42. Do you need any further information to confirm or test the diagnosis / explanation you provide?

YES

Go to QUESTION 43

NO

Go to VIGNETTE 4

43. Please explain what information you consider essential and your reasons for this.

Case Vignette 4:

A colleague providing community care for a planned home birth has 'phoned to consult you. Sam is a 35 year old primigravida at 41 weeks gestation who wishes to have a 'natural birth'. She has been having regular contractions for 16 hours. Until 1 hour ago the contractions were regular every 3 min, moderately strong and lasting 50 seconds. The fetal heart has remained normal and Sam has coped well with discomfort. Over the past hour the contractions have become weaker and less frequent (1 in 10 min). Sam is not reporting much pain and there are no signs of maternal or fetal distress.

HAVING READ THIS 'CASE VIGNETTE' PLEASE ANSWER QUESTIONS 44-46.

44. In terms of labour progress, please provide the most likely explanation with justification for your diagnosis.

PLEASE TICK THE BOX, WHICH MOST NEARLY REPRESENTS YOUR POSITION.

45. Do you need any further information to confirm or test the diagnosis / explanation you provide?	YES	Go to QUESTION 46
	NO	Go to QUESTION 47

46. Please explain what information you consider essential and your reasons for this.

47. Further comments about questions 35-46:

48. Do you have any comment that you consider relevant to the study?

IF SO USE THIS SPACE (AND CONTINUE OVER PAGE).

IF COMMENTS RELATE TO INDIVIDUAL QUESTIONS, PLEASE IDENTIFY THE RELEVANT NUMBER.

Thank you, for taking the time to complete this questionnaire!

APPENDIX 10: Analysis

10.2 Analysis showing labour trajectory

10.4 Memo

NORTHUMBRIA UNIVERSITY

1. Anticipated Trajectory of Labour from Maternal Reaction - developed

INDICATOR	EARLY LABOUR	ESTABLISHED	TRANSITION / EXPULSIVE PHASE
contractions	nigging - irregular, infrequent, weak, short duration, Diminishing or Increasing.	regular frequent - 1 in 5 mins to 1 in 2 strong moderate duration 30 - 40 secs Increasing or consistent	regular less frequent - 1 in 4 or 1 in 5 mins) much stronger longer duration palpated more centrally
discomfort with contractions	uncomfortable (backache, lower thighs and general abdomen)	Discomfort - pain (abdomen, back) Request for analgesia	discomfort increased to pain in lower anterior abdomen. Pains in vagina Request for analgesia
respiratory affects / noises with contractions	quiet controlled breathing (holding)	deeper breathing during contractions, blowing sounds (huffing and puffing), moaning noises	moaning, crying out, pleading, grunting, oomph on end
posture	relaxed, holding abdomen and back, mobility not affected	holding abdomen and back, leaning forward, on furniture on people mobility reduced during contractions	holding lower pelvic area tense, ridged buttocks clenched, knees drawn together immobile during contractions

2

INDICATOR	→ → ANTICIPATED PROGRESS → →		
	EARLY LABOUR	ESTABLISHED LABOUR	TRANSITION / EXPULSIVE PHASE OF LABOUR
CONTRACTIONS (perception of pressure / strength, frequency and duration)	Nigging – irregular, infrequent, weak, short duration, diminishing or increasing.	Regular Frequent – 1 in 5 min to 1 in 2 Strong Moderate duration 30 – 40 sec Increasing or consistent	Regular Less frequent – 1 in 4 or 1 in 5 min Much stronger Longer duration Palpated more centrally on abdomen
DISCOMFORT WITH CONTRACTIONS	Uncomfortable (backache, lower thighs and general abdomen)	Discomfort (pain) in abdomen and back. Request for analgesia	Discomfort increased to pain in lower anterior abdomen. Pain in vagina Request for analgesia
RESPIRATORY AFFECTS / NOISES WITH CONTRACTIONS	Quiet controlled breathing (holding)	Deeper breathing during contractions, blowing sounds (huffing and puffing), moaning noises	Moaning, crying out, pleading, grunting, oomph on end.
POSTURE	Relaxed, holding abdomen and back, mobility not affected	Holding abdomen and back, leaning forward on furniture / on people, mobility reduced during contractions	Holding lower pelvic area tense / ridged Buttocks clenched Knees drawn together Immobile during contractions

→ → ANTICIPATED PROGRESS → →				
INDICATOR	EARLY LABOUR	ESTABLISHED LABOUR	TRANSITION / EXPULSIVE PHASE OF LABOUR	
CONTRACTIONS (perception of pressure / strength, frequency and duration)	Nigging – irregular, infrequent, week, short duration, diminishing or increasing.	Regular Frequent – 1 in 5 min to 1 in 2 Strong Moderate duration 30 – 40 sec Increasing or consistent	Regular Less frequent – 1 in 4 or 1 in 5 min Much stronger Longer duration Palpated more centrally on abdomen	
DISCOMFORT WITH CONTRACTIONS	Uncomfortable (backache, lower thighs and general abdomen)	Discomfort (pain) in abdomen and back. Request for analgesia	Discomfort increased to pain in lower anterior abdomen. Pain in vagina Request for analgesia	
RESPIRATORY AFFECTS / NOISES WITH CONTRACTIONS	Quiet controlled breathing (holding)	Deeper breathing during contractions, blowing sounds (huffing and puffing), moaning noises	Moaning, crying out, pleading, grunting, oomph on end.	
COMMUNICATION (answering questions)	Able to talk during contractions	Requests to wait for reply such as 'just a minute'	Unable to respond during contractions. No answer, or no acknowledgement of question.	
POSTURE	Relaxed, holding abdomen and back, mobility not affected	Holding abdomen and back, leaning forward on furniture / on people, mobility reduced during contractions	Holding lower pelvic area tense / ridged Buttocks clenched Knees drawn together Immobile during contractions	
STATE OF MIND (REACTIONS TO CONTRACTIONS)	Calm	Not really composed with contractions, irritable	Unsettled, agitated, 'wild' (out of control)	
LEVEL OF INHIBITION	Discrete and shy	Less inhibited during contractions	Indiscrete. Shouting, baring body and uncontrolled movements with contractions.	
VISIBLE SIGNS: Anal dilatation, Bulging perineum, 'show', liquor (no ARM)			Present Present, with gaping vagina. Copious blood stained mucous. Leaking with contractions	
TEMPERATURE INDICATORS: COLOUR ('Flush on') pink on face or pink allover PERSPIRATION	Slight flush on cheeks Slight sweating	→ →	Sweating heavily	

Memo

*W12 Understanding of Colleagues and Work Unit
Dispositions and Relationships*

There are examples of midwives in the study demonstrating a view of the dispositions of colleagues in the work unit. Understandably the students are observed for effort and practice knowledge:

'I do think they (student midwives) work hard. But I wish they had a bit more practical.' (MI3 113-114)

Senior midwives also monitor aspects of performance of the qualified midwives:

'sometimes some ... midwives go overboard with their records. Others don't do enough.' (MI3 28-29)

Perhaps students are equally aware of the dispositions of qualified staff. One of the interviewees described dispositions of midwives who had been her mentors:

'The cautious one was very efficient, used to co-ordinating. A good midwife. By the book.' (MI4 119)

'(A second mentor was)....into using the research. More laid back, she wasn't a very good communicator..... She would sometimes go in with both feet.' (MI4 119)

This interviewee seemed to be exploring what was positive in each case, considering how each measured up and balanced in terms of attributes. As experience developed some practices that had been copied by the interviewee were rejected after observing alternative approaches which brought to light negative or unnecessary aspects of practice:

'... the first person was forever having her finger in the vagina.' (MI4 133)

When midwives talked of action that was not necessary they used the term interference. For example, one of the midwives identified that there was a tendency for professionals in the maternity services to be more active in monitoring and managing labour than was desirable:

'Because we interfere too much!!!' (MI5 192)

Interference also categorised what midwives classed as unnecessary or inappropriate enquiry or interest from medical staff. This seems to be connected with relationships that involve negotiation of role, and may indicate professional demarcation:

'... they (doctors) don't interfere unless we ask them.' (MI3 385-386)

or recognition of expertise across professional boundaries:

'If you're experienced they'll (doctors) depend on you. they won't come down and do another vaginal examination, because you've just done one So once they trust you they won't do another one.' (MI2 194-200)

It seems that building up trust is important within the midwifery team and, until other midwives recognise expertise they are critical of mistakes:

'..as a junior ... when you've missed something, and you've made an error, everybody is just God you missed that. ... as a senior person, people are more accepting of you missing something. (MI 1 449-452)

However, this midwife recognises that when experienced midwives make mistakes, comments may be made out of earshot:

'Or they don't point their fingers directly at you. They might say it behind your back.' (MI1 456-457)

Confidence and experience may they contribute to relative power relations which influences the behaviour of colleagues in situations where discretion may lead to errors.

Confidence in practice and in negotiating relationships seems to be associated with seniority. While one midwife explained the midwife-doctor relationship in terms of the doctor's confidence in the midwives skills, another seemed to give the impression that she determined certain collaboration:

'If I've got a patient and she's normal, then I want no interference from the doctor.they don't unless I ask' (MI3 380-382)

'...a doctor does not interfere with my management unless I request it. And by gum they know it (laughter).'

(MI3 387-389)

The difference can perhaps be explained by the fact that the latter situation implies normality and the midwives domain of practice, while the former involves the doctor accepting the midwives judgement in the case of probable abnormality. This is his domain of expertise.

W13 Understanding of Organisation

The midwives in the study are aware of norms of practice within the trust and they indicate that there are expectations regarding the use of vaginal examinations to assess progress:

'We all sort of assess patients 4 hourly. I would always think of 4 hourly. And I'll be honest - I would assess them quicker if I felt they needed it.' (MI3 8-10)

'Because its accepted practice to do a vaginal examination. If I was to bring somebody in and deliver them 2 hours later without doing a vaginal examination and something went wrong I would be asked 'why did you not do a vaginal examination?' So we do them!' (MI2 127-131)

One of the midwives emphasises the need to obtain the maximum amount of information at each examination. This provides the midwife with more information to base clinical decisions on and in the case of complications or failure to progress, reduces the need for medical staff to repeat the procedure:

'.... Because then you can reduce the number of vaginal examinations that they are getting but it's also good for your own practice and it makes you a better midwife.' (MI2 211-213)

Avoidance of unnecessary vaginal examinations is important:

'...I don't like giving them too many vaginal examinations.' (MI3 255-256)

This may make midwives reluctant to perform vaginal examinations to simply fulfil information needs of the woman or her family.

W14 Understanding of Self

Midwives demonstrate awareness of their dispositions and biases, how they learn (strengths and weaknesses) and the conditions affecting the quality of performance:

'I try to stop them pushing until I see the head. I like them on their side. I'm a great one for having them on their side, and letting them take their time, and getting them to breath the entonox' MI3 361-364)

'I don't like all this Diamorphine.' (MI5 479)

'.....I blamed the trileen. So I would never use it after that.' (MI3 241-242)

'Personally, I use one (hand - to assess descent abdominally). I know it's less painful to use two, but because for all these years I've used one I can feel more I can then feel deflexion, or the size of the babies head as well. I can just feel more. But I know that its more painful so in truth I should really be using two, but I can't feel as much with two so I don't know whether that's because of the manoeuvres, or because I've always used one.' (MI2 72-81)

'I don't often get it wrong.' (MI1 431)

W15 Strategic Understanding

There was not much evidence of strategic understanding, but this is in part due to a focus on individual practice. One midwife commented on the increasing documentation that midwives had to complete and linked this to a fear of litigation.

'I would say the writing has increased drastically ... but then you see it's the fear of litigation.' (MI3 24-25)

This midwife contrasted the need to document many more observations than was expected in the past and linked this to differences in practice.

'.. you see we didn't use fetal heart monitors then either. you've got to put the fetal heart down every time you listen. If she uses the bedpan. And we didn't do that before.' (MI 3 41-53)

The requirement to write something down may encourage midwives to focus on concrete events that can be measured like volume of urine passed or fetal heart rate and in the same way amount of labour progress.

Would a midwives alternative type of report of increasing maternal restlessness and irritability, noisy breathing and sweating be viewed as a credible entry? If not, could this be why midwives examine the cervix for a subjective assessment of dilatation that they can convert into what appears as an objective / scientific measure of progress that can be compared to a previous measure or to population norms?

Is the use of a partogram encouraging midwives to complete the graph rather than dismissing it for 'normal births' and writing alternative assessment information?

Is the use of a partogram for all births making the delineating cases suitable for expectant management and medical, active management less clear for midwives and doctors?

APPENDIX 11: INFORMATION SHEETS & CONSENT FORMS

- 11.2 Information about Observation Phase**
- 11.3 Consent Form (Individual)**
- 11.4 Midwife Information Sheet**
- 11.5 Information sheet for women in labour (intrapartum)**
- 11.6 Consent Form (group of midwives on labour ward during field study)**
- 11.7 Research project outline (for distribution within case)**

RESEARCH PROJECT:

MIDWIVES ASSESSING PROGRESS IN LABOUR

INFORMATION ABOUT OBSERVATION PHASE

It is anticipated that several sessions of observation will be carried out on the labour ward at xxx. These sessions will most probably be during the afternoon, evening and during the night. This is because of assumptions about the differing nature of 'the work' during these periods.

The observation phases will consist of a variety of enquiry methods, directed by opportunity and theoretical sampling. Such as listening and watching, questioning, examining records, asking for clarification and completing a progress grid. Audiotapes and notebook will be used to record responses or clinical conversations. It will probably be desirable to observe the process of clinical assessment. The rationale for this is that expert practitioners are often not fully aware of how they apply practice knowledge within clinical environments. This is particularly the case when attending to several things at once (for example, client pain, relatives need for information and assessment of progress).

In order to carry out the research, the researcher will remain on the labour ward in proximity to midwives on duty. Reporting of cases at hand-over will be taped. Individual hand-over of client information will be sampled. It is not anticipated that the researcher will spend time with women in labour, and she will not participate in care.

Consent:

Although the researcher is a qualified midwife in relation to the research consent is an issue. It is proposed that midwives on duty for a 'shift' identified for observation, complete a consent form. Thereafter the researcher will negotiate opportunities to collect data. Clients being examined must sign a form and the researcher will explain the project to them, and their role in this.

Involvement:

To date midwives who have participated in the project, and acted as respondents for individual interviews have had a role in shaping the priorities and focus of the work. This includes feedback on the progress of the research, including analysis of the results, with the opportunity as individuals to comment on conclusions reached by the researcher. As the observation phase progresses, the researcher will share this type of information with participants in the study. The method to be negotiated.

Researchers Details:

Maureen SOOKHOO, Principal Lecturer (Midwifery), Division of Midwifery and Neonatal Care, Faculty of Health, Social Work and Education, University of Northumbria at Newcastle, Coach Lane Campus, Newcastle. N11 7XA. Telephone Number: 0191 215 6148

CONSENT FORM

I have read the information sheet and understand what is involved in the project **MIDWIVES ASSESSING PROGRESS IN LABOUR**. I am willing to take part in the project, and understand that I can withdraw my consent at any time.

Signed _____

Date _____

Printed Name _____

Address _____

Telephone No. _____

It is often useful to quote individual participants to make a point clear in the research report. Confidentiality and anonymity is maintained.

Thank you for your help.

INFORMATION SHEET

MIDWIVES ASSESSING PROGRESS IN LABOUR PROJECT

A project investigating the methods used by midwives to assess progress in childbirth is taking place in North Tyneside Health Care Trust. The study is concerned with the skills and knowledge, acquired and used by experienced midwives in NTHCT to assess progress.

Your name has been provided by a manager as someone who has the required experience, who may be willing to participate in the study.

If you are willing to participate you will be interviewed by the researcher in XXX Maternity Unit. The interview will last no longer than two hours. Following the interview, you may be asked whether you are willing to participate in fieldwork which involves the researcher observing intrapartum care (with the consent of the client), with a focus on the assessment of progress. A time, which is convenient to, you will be negotiated. Alternatively you may have been approached to participate in the observation phase of the study before being interviewed.

Information will be recorded in written form, and on audiotape. Information will be treated as confidential and will be stored in a locked, secure cabinet during and after the study until it is deleted or destroyed. Real names of participants will be excluded from reports, and codes (rather than names) will be used to identify tapes and other sources of data and reports.

I hope you agree to participate in the research. I would like to emphasise that:

- Your participation is entirely voluntary,
- You are free to refuse to answer any questions or deny any observation,
- You are free to withdraw at any time,
- Your refusal to participate will not affect the service or care received.

The information collected will be kept strictly confidential and will be available only to members of the research team. Under no circumstances will your name or any identifying characteristics be included in a research report.

I hope you will agree to take part in the project. It is important that midwives make visible their practice knowledge, and their views on development of this knowledge. Prioritise identified by midwives and consumers will be represented in this project, which provides an opportunity to play a part in shaping midwifery practice in North Tyneside.

Maureen SOOKHOO, who is undertaking the study, can be contacted, should you have any questions at: The Division of Midwifery and Neonatal Care, Faculty of Health, Social Work and Education, University of Northumbria at Newcastle, Coach lane Campus, Newcastle upon Tyne, N11 7XA. Telephone No: 0191 215 6149.

INFORMATION SHEET

MIDWIVES ASSESSING PROGRESS IN LABOUR PROJECT

A project investigating the methods used by midwives to assess progress in childbirth is taking place in North Tyneside Health Care Trust. The study focuses on the experience and views of women who are giving birth, or have recently given birth.

A midwife who is in the study, and who is providing care to you on the labour ward has provided your name. The midwife will have made an initial request that you participate in the study.

If you are willing to participate the researcher will observe the practice, records and communication of the midwife who is caring for you and assessing the progress of your labour. This will involve re researcher who is a Registered Midwife being present in the labour room. Following the birth of your child, you may be asked whether you are willing to participate in an individual interview. A time and location, which is convenient for you, will be negotiated.

Information will be recorded in written form, and on audiotape. Information will be treated as confidential and will be stored in a locked, secure cabinet during and after the study until it is deleted or destroyed. Real names of participants will be excluded from reports, and codes (rather than names) will be used to identify tapes and other sources of data and reports.

I hope you agree to participate in the research. I would like to emphasise that:

- Your participation is entirely voluntary,
- You are free to refuse to answer any questions or deny any observation,
- You are free to withdraw at any time,
- Your refusal to participate will not affect the service or care received.

The information collected will be kept strictly confidential and will be available only to members of the research team. Under no circumstances will your name or any identifying characteristics be included in a research report.

I hope you will agree to take part in the project. It is important that the views and experiences of women are represented in this project. The project provides an opportunity to play a part in shaping midwifery practice in North Tyneside.

Maureen SOOKHOO, who is undertaking the study, can be contacted, should you have any questions at: The Division of Midwifery and Neonatal Care, Faculty of Health, Social Work and Education, University of Northumbria at Newcastle, Coach lane Campus, Newcastle upon Tyne, N11 7XA. Telephone No: 0191 215 6149.

CONSENT FORM (group)

We have read the information sheet(s) and understand what is involved in the observation phase of the project MIDWIVES ASSESSING PROGRESS IN LABOUR. We are willing to take part in the project, and understand that at any time consent can be withdrawn.

MIDWIVES			
Date	Printed Name	Signature	
OTHER STAFF			
Date	Post	Name	Signature

It is often useful to quote individual participants to make a point clear in the research report. Confidentiality and anonymity is maintained.

Thank you for your help!

RESEARCH PROJECT

MIDWIVES ASSESSING PROGRESS IN LABOUR

The project is being undertaken by a research student enrolled and registered with the University of Northumbria at Newcastle (UNN). Formal supervision is provided by two professors at UNN and Maureen Harwood, General Manager / Head of Midwifery, North Tyneside Health Care Trust. The researcher is a Registered Midwife, employed at UNN, eligible to practice and subject to the requirements of the Professional Bodies for professional standards (for example in regard to confidentiality).

The project will explore the knowledge and skills used by midwives to assess progress of labour. Information will be obtained from various sources including interview, observation and questionnaire. The views and experiences of midwives, clients and other health professionals are considered highly relevant to the project which will be confined to XXX Health Care Trust. It is anticipated that the project will have a positive influence on midwifery practice, knowledge and skills and benefit clients in North Tyneside.

Anyone requested to participate in the study will have the opportunity to seek clarification about their involvement and to ask questions. Requests to observe care will be made verbally prior to any observation, and refusal to take part in the study will not prejudice the care provided. Records made during the research will be regarded as confidential, in that the identities of those involved will not be linked to particular incidents or data.

Researcher: Maureen Sookhoo
'Phone No. 0191 2273444

APPENDIX 12: PUBLISHED PAPER

Sookhoo ML & Biott C (2002) Learning at Work: midwives judging progress in labour. Learning in Health and Social Care, 1, 2, 75-85.

Learning at work: midwives judging progress in labour

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Keywords

decision-making,
labour, learning,
midwives, progress,
working

Abstract

This paper argues that it is important to understand how midwives learn at work and acquire practice knowledge, as well as how this influences their judgements of progress in labour. It is based on part of a study in which experienced midwives were interviewed about their practice and experiences in a maternity unit within a medium-sized district general hospital in the north-east of England. One key to understanding how judgement about progress is made lies in the way that uncertainty is conceptualized and dealt with. One of the ways of avoiding uncertainty is to rely upon conventions and put trust in procedures. In particular, the use of 3 cm dilatation of the cervix is often adopted as an indicator of the commencement of labour, but this raises dilemmas for midwives who recognize the intrusive nature of vaginal examination. Experienced midwives draw on a wider range of evidence and they have learned through the challenges of the job to recognize the provisional nature of signs of progress, which novices may see as predictive. For this reason, they avoid inappropriate intrusion as a matter of routine practice. The capacity to cope with uncertainty is seen as an integral part of midwifery practice and this raises questions about how new midwives can be helped to use holistic assessment within the security of established procedures.

Introduction

This paper explores how midwifery knowledge is acquired and used in the diagnosis and judgement of progress throughout labour. Based on a series of in-depth, unstructured interviews with five experienced midwives, the paper argues that midwives' concerns to reduce uncertainty are a key

factor affecting their decision-making. For example, in the service studied here, it was apparent that when the signs and symptoms of progress in labour were not obvious, midwives tended to rely mostly on vaginal examinations and the apparently objective criterion of 3 cm dilation of the cervix. This affected how other evidence was being gathered and weighed.

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An over-reliance on cervical dilation seemed to be more prevalent in circumstances where choice and individual judgement were perceived to be limited. Higher levels of intrusiveness may be associated with limited experience of the midwife and/or with conflicting responsibilities leading to less time being spent with clients. A sense of professional discretion appears to be enhanced by increased proximity and sustained interaction with clients over time; scope for exercising discretion increases with experience and as credibility is established among co-workers.

The paper concludes by arguing that the organization of the delivery of care has direct impact on midwives' learning opportunities. Learning opportunities, especially through the challenges of the work itself and via co-operation both with women in the intrapartum stage of labour and with co-workers, influence how practice knowledge is developed in delivery wards. In particular, it seems that an enhanced sense of individual judgement develops through sustained interaction with clients in a workplace culture that values holistic assessment and midwives' capacities for judgement.

The complexities of assessing intrapartum progress or how midwives develop specific skills and knowledge are not addressed in any previous study. However, Eraut *et al.* (1998) explored practice knowledge acquisition in professional groups, including midwives, developing a model of professional learning in the workplace that identified what professionals learn, how this learning develops and the factors that affect learning (Fig. 1).

Eraut *et al.*'s (1998) recommendation that case studies should be conducted in depth in a range of work environments has been taken up within this

study, which has adapted the model to address the specific focus of the research.

Dilemmas associated with cervical dilatation

The pressures for midwifery services to provide care that is client-centred, rather than technology-driven, is in part related to the lack of evidence supporting technological intervention in normal childbirth (Fraser *et al.* 1998). Transition from active management of childbirth to expectant management is being encouraged (Department of Health 1993).

A fundamental difference between active and expectant management is in the degree of professionals' confidence in maternal physiology. In active management, physiology is suspect, the rate of labour progress is prescribed and cervical dilatation is plotted on a graph and compared against an expected trajectory that represents 'normal progress'. Failure of cervical dilatation to 'keep up' leads to intervention. Active management is associated with routine vaginal examinations performed 1, 2, 3 or 4 hourly. This approach to care was promoted in the 1970s in an attempt at reducing prolonged labour by detecting slow progress and intervening to augment (accelerate) progress (Studd 1973; Studd 1975 and Philpott & Castle 1972). However, for those women giving birth at term, who are expected to have a vaginal birth with minimal assistance, expectant management demonstrates greater underlying confidence in maternal physiology. Variation in progress is accepted as part of individual physiology and, while vigilant observation to

WHAT IS BEING LEARNED?	HOW IS IT BEING LEARNED?	FACTORS AFFECTING LEARNING
<ul style="list-style-type: none"> • Understanding of: situations, colleagues and work unit, own organization, self and strategy • Skills: technical, learning, interpersonal and thinking • Propositional knowledge • Knowledge resources and how to access them • Judgement 	<ul style="list-style-type: none"> • Working for qualifications • Short courses • Special events • Materials • Organized learning support • Consultation and collaboration within the working group • The challenge of the work itself • Consultation outside the working group • Life outside work 	<p>Personal characteristics:</p> <ul style="list-style-type: none"> • Confidence • Motivation • Capability / Prior knowledge <p>The micro context:</p> <ul style="list-style-type: none"> • How a person is managed • The microculture of the workplace <p>The macro context:</p> <ul style="list-style-type: none"> • The organization • Professional bodies

Fig. 1 Development of knowledge and skills in employment (Eraut *et al.* 1998).

detect pathology is provided, the process is left to run its course. Cervical dilatation may be assessed in emergent management, but there is no need for a routine of vaginal assessment.

In theory, the use of vaginal examination should be reduced by an expectant management approach. This is significant, because vaginal examinations have traumatic associations, linked to discomfort, embarrassment and emotional trauma (Clements 1994). Vaginal examination is considered to be invasive and it affects clients in negative ways (Stuart 2000; Walsh 2000); assessment of cervical dilatation is not always reliable (Tuffnell *et al.* 1989) and confidence in the findings cannot be justified (Walsh 2000). Walsh (2000) concludes that, 'routine repeated vaginal examinations in normal labour should be abandoned until research establishes their appropriate place'. Before the mid 1970s, midwives used a number of signs and symptoms to monitor progress in labour and Stuart (2000) believes that midwives should rely to a greater extent on these.

Prior to the 1970s, midwives used alternative methods of examination and developed expertise in these methods. One such method was abdominal examination, made up of inspection, palpation (touch) and auscultation of the foetal heart (Bennett & Brown 1989). Palpation is especially useful for the intermittent assessment of progress in labour: in particular, the pattern of uterine contractions and the descent and flexion of the head assessed on abdominal palpation. Stuart (2000), for example, was able to utilize vaginal examination within her practice if necessary, but she had substantial confidence in alternative skills. She is concerned about the inability of student midwives to utilize abdominal palpation, and their over-reliance on vaginal examination. This concern is shared by Magil-Cuerdon (2001) who has noticed, as I have, that essays written by contemporary student midwives rarely include details of abdominal palpation along with findings from vaginal examination.

It is likely that midwives who have worked in an environment where vaginal examinations are performed routinely, and who prioritize cervical dilatation as a method of assessing progress, may not be skilled in abdominal palpation or may not be con-

fident in what they find. There is a precedent for this in a study that compared active management with management that focused upon physiological childbirth processes to deliver the placenta and membranes (Elbourne & Harding 1989). Midwives in the study required instruction in physiological management due to their inexperience.

There is a tendency for midwives to claim particular knowledge about labour that reflects a unique 'midwifery' view of labour progress, rather than a 'medical' view. Siddiqui (1994), for example, proposes that midwifery knowledge is based upon sense perception, experience and the dispositional state of the midwife. A problem-solving approach incorporating deductive reasoning will reflect all these factors. When such an approach is applied to a case scenario it will produce a typical midwifery response (Siddiqui 1994):

Premise:	The woman is experiencing painful, regular uterine contractions.
Inference:	Contractions are necessary in order to expel the foetus from the uterus.
Conclusion:	Therefore, the woman is in labour.

According to Siddiqui, the inference is based upon midwifery knowledge and the conclusion also incorporates knowledge gained from experience. Such experience is gained from a mix of 'external sense perception', the 'internal senses' and 'the dispositional state of the midwife'. Siddiqui suggests that the dispositional state is important and that it is a 'unique sharing of the experience with women and a commitment to the Elements of Caring'. Judgement is thus influenced by 'the mother's behaviour, physical position, breathing and reported pain experience'.

According to Siddiqui, when given the same set of circumstances, an obstetrician is more likely to arrive at a conclusion different to that of a midwife. This is explained by prioritizing one particular source of obstetric knowledge – physical measurements – which leads to different inferences and conclusions:

Premise:	The woman is experiencing painful, regular uterine contractions.
Inference:	Contractions must be accompanied by cervical dilatation.
Conclusion:	If cervical dilatation is not occurring, the woman is not in labour.

According to Siddiqui (1994), both conclusions are logical, but the second can be questioned because labour without cervical dilatation is not a contradiction if time is taken into consideration (the cervix must dilate eventually). This provides a useful way of understanding the relationship between midwives' knowledge and the 'expectant management' approach. However, some midwives may also use the approach identified by Siddiqui as medical or scientific (Stuart 2000; Magil-Cuerdon 2001) and limit their judgement to the interpretation of physical measurements.

It is possible that routine use of, and over-reliance on, cervical dilatation may have influenced the ability of midwives to develop and retain confidence in other methods of assessment. Magil-Cuerdon (2001) proposes that decisions and judgements are enhanced when assessment is based upon a variety of different types of information.

However, if midwives have skills, knowledge and confidence in using findings from abdominal examination and characteristics of contractions to monitor progress, it seems presumptive to believe that they would find it easy to change their practice. As midwives in the past had greater confidence in using alternatives to cervical dilatation to assess progress, it is likely that these skills could be reintroduced. It would be important, however, to establish the practice knowledge that influences the use of particular assessment at specific times. What knowledge and skills are contemporary midwives using to assess intrapartum progress, how is this linked to opportunities to learn and what is the effect of organizational and cultural factors on learning and developing practice knowledge?

How midwifery practice knowledge is learned at work

Much clinical midwifery knowledge is related to caring and refined over time. Decisions form the

basis of appropriate intrapartum care (Cioffi 1998) and appreciating the complexity of decision-making raises questions about how midwives learn to make decisions about intrapartum assessment. Taylor's (2000) discussion of various studies highlights: (i) the complexity of clinical options (infrequently 'either-or', but often combined, and rarely stable or concluded); (ii) the accuracy of judgements, and (iii) compensatory ways of addressing limited information-processing ability such as selective attention and use of cues, working hypotheses and inductive reasoning.

Understanding how midwifery knowledge is learned and used is important. There are studies that examine professional learning (Price & Price 1993; Eraut 1994; Rolfe 1997; Eraut *et al.* 1998; Radwin 1998; Walker & Sibson 1998) and, in particular, professionals' learning at work (Eraut *et al.* 1998). These studies suggest that clinical expertise derives from both experience and formal education (Eraut 1994). Experience that is personal and contextual is likely to be important in effective intrapartum monitoring. During the process of providing care, the 'challenge of the work' and 'consultation and collaboration within the working group' will contribute to the development of learning that can be identified with experience (Eraut *et al.* 1998).

According to Walker & Sibson (1998), midwifery has 'many indeterminate areas of practice', which have evolved through practice and cannot be translated easily into rules or recipes. The knowledge related to such indeterminate areas of practice can only be gained from experience of working within such an area. Experience is associated with the development of three decision-making attributes: (i) patient-centred focus; (ii) confidence and knowledge of antecedents, and (iii) consequences of specific patient situations including recognition of patterns and trajectories (Radwin 1998). Possession of knowledge derived from practice and experience distinguishes senior nurses from students (Walker & Sibson 1998) and is likely to be important in skilled intrapartum assessment.

How practice knowledge and skills are used is affected by the action context. In the 'what ought to be done' environment of practice knowledge, knowledge based on implicit theory reflects pragmatism and experience, and is used in idiosyncratic

ways. When the action context reflects 'hot action' and a lot of information has to be processed quickly, rapid responses are essential for coping with one's work (Eraut 1994), and short-cuts based on experience are used to arrive at reasonably accurate decisions (Gioffi & Markham 1997).

The research project

The paper is part of a continuing qualitative study, whose aims are:

- to investigate the practice knowledge and skills used by qualified midwives when examining women to assess progress in labour, and
- to identify the dilemmas that midwives face when selecting methods to assess progress and their consequences for clinical decision-making.

Methods

This paper presents evidence from five in-depth (2 h) unstructured interviews with qualified midwives. They were asked how they carried out assessment of progress, the extent to which they made use of particular information, how the assessment was influenced by clients, other people and organizational requirements, and how they had learned to make an assessment. Interviews were audiotaped, transcribed and coded using the constant comparative method of analysis described by Straus & Corbin (1990).

The setting for the study is an urban district hospital obstetric unit with about 3000 deliveries per year. Within the unit, midwives refer women during childbirth to obstetricians if and when the need arises. The setting has been selected for the study because of the degree of autonomy that midwives appear to have when providing intrapartum assessment.

Selecting the sample for interview was purposeful and was directed by emergent theory and recommendations from midwife respondents to follow up leads or to produce different perspectives. Three of the midwives had management responsibility, two in the clinical area and one for the midwifery unit; two worked as staff midwives. All were based within the hospital. Their experience of providing intrapartum care varied: two midwives had considerable experience, one midwife had only one previous rotation to the labour ward and the other two had substantial experience. Three of the midwives had undertaken post-registration midwifery study: one had completed a degree and the others had taken diploma-level units.

Results and discussion

Categories of content emerging from the transcripts were grouped under five main headings (Fig. 2): diagnostic orientation, diagnostic processes, learning and working, diagnostic indicators and vaginal examination.

1. Diagnostic orientation <ul style="list-style-type: none"> • Activity style • Discretion • Sphere of practice 	2. Diagnostic processes <ul style="list-style-type: none"> • Information gathering • Information processing • Information weighing • Information uncertainty • Progress classification 	3. Learning and working <ul style="list-style-type: none"> • Confidence • Experience (type and amount) • Knowledge and skill • Organizational and societal factors
4. Diagnostic indicators: <ul style="list-style-type: none"> a) External signs <ul style="list-style-type: none"> • Descent of foetal head • Uterine contractions • Foetal condition • Maternal condition • Posture b) Internal signs <ul style="list-style-type: none"> • Pain • Breathing noises • Cervical dilatation • Cervical effacement • Fetal membranes 		5. Vaginal examination <ul style="list-style-type: none"> • Political concerns and dilemmas • Objectivity • Unpleasant procedure • Interpersonal intrusion

Fig. 2 Categories of transcript content.

As part of the diagnostic process, midwives gather information in the form of diagnostic indicators from external signs or internal signs, frequently obtained from vaginal examination. This information is then processed by weighing, comparing and contrasting to get a 'picture of the situation'. When information weighing is taking place, midwives operate with a degree of information uncertainty.

Information uncertainty has to be accommodated by midwives when they are engaging in the diagnostic process while at the same time providing care for women, such as meeting their requirements for information or responding to their need for support with discomfort. The mother's need for care will influence the way the diagnostic process is applied and the progress classification that results. Progress classification is a term used to refer to judgements about progress in labour that feed back into the diagnostic process and influence further information-gathering within the current case.

The term diagnostic orientation is used in the model to describe the approach that individual midwives adopt within the diagnostic process. The degree of discretion experienced by an individual midwife, their sphere of practice and their particular role influence their activity style, as well as their current workload. The other major influence is their previous diagnostic orientation, developed through learning and working in other contexts and conditions. Meanwhile, their current feedback from cases and significant others in the workplace influences their ongoing learning and working.

Midwives spend considerable time talking about the procedure of vaginal examination: this is an indication of the dilemma they have about using it. On the one hand, participants justify the use and value of vaginal examinations ('they have a value and we need them'), while on the other hand, they recognize the need to minimize their use ('we probably do too many examinations').

Midwives recognize the discomfort, embarrassment and emotional trauma when the procedure is used (Menage 1996; Robolm & Buttengheim 1996):

Smear tests are no worse than VEs. Both are horrible ...

If you've got somebody that's really, really distressed, doing a vaginal examination only appears to add to that distress.

Many midwives, as women, have had personal experience of the procedure and found it unpleasant; and they are also aware that some women would rather not have vaginal examinations:

I've had a few patients who have refused vaginal examinations.

The young girls are the most terrified of them.

Moreover, vaginal examinations can affect the experience of and physiology of labour:

... There would be no need at this point to interfere too quickly.

I think it interferes with the woman ...

Prior learning influences the way in which midwives in the study interpret the context and, in particular, how they see the woman's intrapartum status. This seems to be related to the features of those learning opportunities where links between intrapartum outcomes and indicators of progress materialize. In learning situations, where cervical dilatation is 'measured', recorded and seen as the most important indicator in the diagnostic process, learning tends to be limited to the relationship of cervical dilatation to progress. In contrast, if a number of other methods of assessment are used to establish progress, then learning is mostly about the relationship of a variety of indicators to progress. In each case, confidence in using particular indicators influences the way that information is weighed within the diagnostic process and how that

information is gathered. Therefore, confidence in multiple sources of information or multiple methods of collecting information reduces reliance upon vaginal examination to estimate cervical dilatation. Where this is not the case, the midwife may become very reliant upon cervical dilatation.

How participants use vaginal examination as part of intrapartum assessment varies. Taylor (2000) identifies how practitioners develop a working hypothesis and then gather data to test it. This seems to be happening in the study:

I make a prediction quite early on ... before I've done a vaginal examination.

According to Taylor (2000), routine general questions lead to recognizing something significant, and then more specific data is collected to test out a newly activated hypothesis:

The most important thing is the vaginal examination ... because sometimes, if you're doing that last, and you predict what you expect the dilation of the cervix to be ... occasionally you can be completely wrong ... There might be somebody who's not in labour ... the contractions are rotten, and there she is 5, 6, 7 cm ...

This quote demonstrates that the original hypothesis, that 'rotten contractions' indicate minimal progress, was not reflected in the cervical dilatation, which indicated good progress. Cervical dilatation, however, is evidence of the 'efficiency of the uterus' up to the point of measurement, rather than evidence of what will happen next. What is not known is whether the evidence is conflicting, or representing different parts of the labour process. Midwives demonstrate awareness of how cervical dilatation can be used to estimate past uterine activity, and the limitations of this as a predictor of progress:

I know quite often when you do a vaginal examination, it doesn't confirm one way or another.

It gives an indication that things have changed, but all it gives you is a baseline. Because you don't know if she's going to progress or not progress.

When labour is advanced, a more confident prediction is possible:

It tells you if there is effacement or dilatation of the cervix but quite often, unless she is well advanced in labour, it doesn't tell you that she is definitely on her way.

In addition to developing an individual midwife's confidence in various types of diagnostic indicator, prior learning has an indirect effect on practice through its influence on the amount of discretion that she is allowed. The amount and type of discretion given to a midwife to determine the type of information she collects will depend on how her midwife colleagues judge her experience. The confidence of other practitioners in an individual's ability to accurately identify and/or predict intrapartum progress reflects what those practitioners have learned about the skills and knowledge of their colleague.

Particular circumstances at any time, such as conflicting demands or pressure of work, may also influence activity style. Some midwives in the study report that they make greater use of less intrusive assessment than others. They consider that this is because they are able to take time observing individual women and because they have confidence in a holistic, intuitive assessment. When midwives are able to maintain proximity with intrapartum women, some of them are more confident in and more likely to rely on intuitive assessment. Sometimes conflicting responsibilities may require midwives to spend less time with individual women; in these

circumstances, midwives are more likely to undertake vaginal examination to assess cervical dilatation.

Doing a vaginal examination sometimes if you're pushed, you'll do it to say 'yes she is or isn't in labour'. Because you've got other commitments.

It appears that higher levels of intrusiveness can be associated with less experience in holistic assessment and conflicting midwifery responsibilities that reduce proximity between a midwife and intrapartum woman. The latter is consistent with Taylor's (2000) view that longer interactions lead to a greater amount of information being gathered and a more accurate diagnosis.

Establishing a diagnosis of progress is particularly difficult in the early part of labour for two reasons. The time spent by the midwife with the woman may not have been long enough for the development of mutual trust and understanding, and the signs and symptoms of labour are less significant at that stage. Hence women have problems interpreting their symptoms and communicating them. For example, the transition from painless Braxton Hicks contractions to painful expulsive contractions is gradual and confusing. This could be likened to being asked if you are preparing for a holiday. Is preparation an idea, passport application, booking or packing? As with clients, midwives in the study have greater difficulty in identifying labour when symptoms are slight and signs are less obvious. Thus uncertainty about information is particularly evident in the early part of an encounter between midwives and intrapartum women, especially in the early stages of labour.

Uncertainty is not problematic in itself, as birth is a physiological process that usually progresses of its own accord, with or without recognition. While there are occasional situations that are potentially pathological and must be recognized, it is for the most part client expectations, social issues or organizational factors that require a midwife to arrive at a clinical diagnosis quickly:

... Whilst I as a midwife am happy to wait and see, quite often the mother wants to know ... and I think that's why it hinges on this [vaginal] examination ...

Uncertainty about a diagnosis is particularly problematic in these circumstances because, if a client wishes to go home, there is pressure on midwives to make a decision, based on little proximity with the client, at a time when indicators are not clear. If it is not certain from external assessment that labour has not begun, there is an expectation that midwives will incorporate cervical dilatation in clinical decision-making. A cervix that is dilated 3 cm is taken (within the study area) to be conclusive of established labour. More importantly, if the cervix is not dilated 3 cm, the woman can go home. There is a requirement to document this in the client's notes.

We are doing this audit at the moment, and that is the criteria, 3 cm dilated. X said if we wanted to do this [discharge women who are not in labour], then we had to have a criterion. So that is the criterion.

This raises the issue of confidence in particular indicators. Midwives in the study accept that dilatation (3 cm) of the cervix is not conclusive evidence of labour or 'false labour'. They have no more confidence in cervical dilatation than any other indicator on its own; but there is an expectation that midwives will prioritize cervical dilatation when considering discharging women from the labour ward. There appear to be two factors operating here. Firstly, a necessity to gather all available information and be as confident as possible prior to discharging women from the labour ward. Secondly, to document and disclose evidence in a way that is understood by those concerned. Even though all indicators are estimated and used subjectively, converting cervical dilatation into a numerical score gives the impression of greater objectivity.

At the time of data collection, the practice of midwives discharging women from the labour ward was a new development within the study area. This new practice was a site of participation for midwifery as a 'community of practice', and it was taking place on a boundary with medical practice. According to Wenger (1998), reification is about 'creating points of focus around which the negotiation of meaning becomes organized' (p. 58); in this context, it can be seen as 'a way of interpreting' a client state. Ambiguity permits reification to accommodate different viewpoints, misunderstanding and failure to detect incompatible assumptions. The audit of practice was, to an extent, attempting to avoid this in the short term by determining the site of decision-making by midwives. It is possible that prioritization of particular information concerning intrapartum progress can be identified as a denial of negotiability about what it means to midwifery and possibly women. Objectivity is considered to be more scientific, not only by medical colleagues but also by auditors and, in extreme cases, by lawyers.

Thus, this issue can also be seen as yet another example of the tension between client choice and defensive practice. When something goes wrong and there is morbidity or mortality, the evidence is scrutinized and the way a midwife practices may be questioned:

If I was to bring somebody in and deliver them 2 h later without doing a vaginal examination and something went wrong I would be asked 'why did you not do a vaginal examination?' So we do them.

Conclusion

Results indicate that the relationship between the need for certainty and developing a tolerance for uncertainty influences how midwives prioritize diagnostic indicators when assessing intrapartum progress. The ability to feel confident enough in holistic unintrusive assessment to monitor the progress of individual intrapartum women is influenced by prior learning in which there is a

developing confidence in the ability to recognize progress. Until this confidence develops, midwives are likely to use as many diagnostic indicators as they can to be sure of their diagnosis. With confidence there also appears to be less of a personal requirement to know exactly what progress has been made. This is linked to confidence in the birth process and confidence in the midwife's ability to respond quickly and skilfully to assist a woman with birth. Increasing confidence enables midwives to deal with degrees of uncertainty about intrapartum progress.

Confidence and discretion are important in withstanding pressure to obtain greater precision than is justified by the evidence of progress. Midwives in the study have indicated that such pressure is more likely in the early part of labour, when women need information to justify remaining in hospital, or midwives need it to justify discharge. At the time of handover, midwives are required to provide an impression of progress and it is easier to convey this using cervical dilatation. Midwives may also have to justify to colleagues the continuing presence of a woman on the labour ward when it is busy or there is a problem with bed availability. In these circumstances, intrusive assessment is more likely to be used. This is particularly the case when individual discretion is not particularly high.

It is apparent that handling uncertainty about diagnosing intrapartum progress is something that matures with experience and is associated with confidence. However, midwives must also be able to deal with pressure exerted by clients, relatives, colleagues and medical staff in order for them to cope creatively with uncertainty about progress classification. In these circumstances, midwives are more likely to undertake vaginal examination. The capacity to cope with uncertainty and the use of discretion will affect a midwife's ability to withstand pressure from others and to persuade them that she is able to rely on alternative assessment. It appears that experienced midwives may still value cervical dilatation as an indicator of progress, but at the same time seek to minimize its use.

It appears that midwifery judgement about intrapartum progress is not simply about recognizing signs and interpreting them: it is also influenced by

labour ward policies and resources, views of clients and time spent listening, watching and talking with each woman, and with many women over a career. If Siddiqui's (1994) analysis is applied, reliance on empirical evidence such as cervical dilatation reflects only technical rationality and excludes important components of competent midwifery practice. Tolerance of uncertainty and awareness of the provisional nature of judgements are critical components of midwifery practice. Such tolerance and provisionality convey trust in experience, knowledge of the physiology of childbirth and confidence in personal skills. In particular, it includes understanding that evidence of progress at a particular point in labour will not always predict what will happen next, regardless of how that evidence has been collected. It also acknowledges that there is no single, infallible method to estimate progress in labour.

This purpose of this paper has been to contribute to understanding of how experienced midwives learn at work from the challenges of the job and from working with colleagues and women.

It has implications for the training and development of midwives. In early career, unambiguous guidelines and conventions give a sense of security, but they also tend to oversimplify the knowledge held by a community of practice. Over-emphasis on the importance of cervical dilatation, for example, may lead to the neglect of other important sources of evidence that new midwives may not learn to seek, find or use at all stages of labour. In particular, the major disadvantages of reliance on 3 cm dilatation of the cervix are that it is sometimes a misleading indicator of the commencement of labour and that it requires an intrusive examination. In order for novice midwives to develop professional discretion, they need to learn to use a broad range of sources of evidence and to appreciate the acquisition and use of experience. They need to have enough confidence not to use guidelines and conventions when they are inappropriate.

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